e Iror

A Review of the Hardware, Iron and Metal Trades.

Published every Thursday Morning by DAVID WILLIAMS, No. 83 Reade Street, New York. Entered at the Post Office, New York, as Second-Class Matter.

Vol. XXV: No. 2.

New York, Thursday, January 8, 1880.

\$4.50 a Year, Including Postage. Single Copies, Ten Cents.

Management of Steam in Factories.

Before continuing our description of the boilers and steam fittings in use in the factory boilers and steam fittings in use in the factory of Messrs. Bliss & Williams, we desire to correct an error which occurred in the early part of the article published in last week's issue. In asserting that the apparatus was designed especially for hard coal, we inadvertently omitted after hard coal the words, "and coke." Messrs. Bliss & Williams are at present using the apparatus with gas coke exclusively, as will be seen by the continuation of the article below.

Steam having been obtained in the most economical manner, the next important points demanding attention are the methods by which it is to be distributed and used.

economical manner, the next important points demanding attention are the methods by which it is to be distributed and used. In the case in hand all the steam is taken to the engine, and, with the exception of the small quantity of steam taken to the effice radiators, all that is used for heating is obtained by utilizing the exhaust. A 3½-inch pipe carries steam to the engine. This pipe is protected by some 2½ inches of felt and paper, so that the external diameier of the pipe is a rather more than 8 inches. The arrangement of the layers is similar to that shown in Fig. 6. With such a thickness

other is placed in the ground under the engine-room floor, to answer as a tank from which the pump draws its supply of water for feeding the boiler.

The drip pipe from the coils, seen near the center of the old boiler, brings all the water of condensation from the steam pipes, radiators, coils and steam apparatus in the factory. This is its chief source of in the factory. This is its chief source of supply. The main steam pipe has a drip which drains all the water which may be formed in it during the night. Into this drip are brought the pipes leading from the cylinder cocks, and the pipe is then led into the boiler.

The exhaust leaves the engine in a thickly-jacketed pipe and goes into a heater, shown on the left in Fig. 5, which has 48 feet of 1½-inch pipe for heating the feed water. It

pressure will distribute steam through about chief export to the United States was coffee, 1600 feet of properly constructed pipes, while scarcely any observable pressure will be needed to drive it through 1000 feet of 4-inch pipe.
Usually men working at the bench make

much complaint that steam heat is uncomfortable. The hot air rising from the pipes strikes the underside of the bench and escapes upward at the edge, just at the point where the workman is standing. The result is that the lower part of the body is

kept in a constant perspiration and in general discomfort.

The bench adopted by Mr. Jordan, and shown in Fig. 8, does away with this trouble, while it is at the same time a first-class

valued at \$30,000,000. Of the 1456 foreign transit to them, would also conduce to a still vessels entering the harbor at Rio, only 171 greater activity in the mining department.

No one rolling mill would be able to work

The Mining and Scientific Press publishes editorially the following plea for the building of copper rolling mills at San Francisco,

were American. Roach's line of steamers is the only one plying regularly between the United States and Brazil The Canadians have made arrangements for a line between Halifax and Rio. An exhibition of Canadian products is to be opened at Rio de Janeiro next June."

No one roming the would be produced; this industry once inaugurated, other mills would be called into existence to work up the accumulating copper. Nor would this be detrimental to the first in the field. The copper consumed on the Pacific coast would demand the full working capacity of several mills to employ the needed quantity. Even if an exsupply the needed quantity. Even if an excess over the home demand should be preduced, the inter-continental markets would be open to the producers, and they could be supplied at lower rates from this section than from elsewhere, on account of the facilities of production and the difference in freight

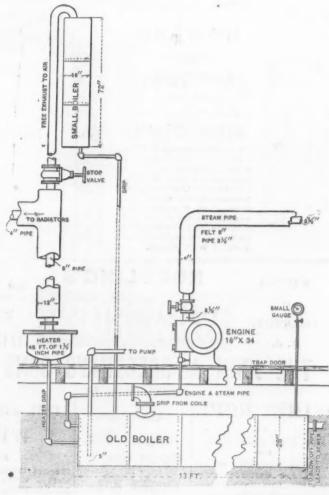


Fig. 5.—Arrangement of Pipes and Tanks to Save Hot Water.

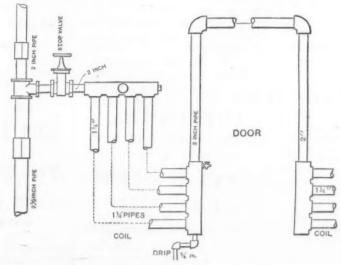


Fig. 7 .- Arrangement of Steam Coils and Drips.

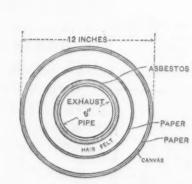


Fig. 6.-Section of Exhaust Pipe and Jacket.

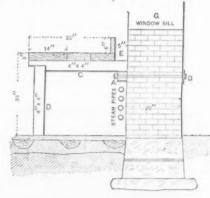


Fig. 8.—Steam Coils Under Benches.

MANAGEMENT OF STEAM IN FACTORIES.

Having got the steam to the engine, the supposition is that in the engine itself it will be used with the greatest economy. If we increase the back pressure for the purpose of heating, it is because it is more convenient to use the low pressure steam thus obtained than it would be to take in steam from the

Low pressure steam, it is very generally admitted, is much more desirable for heating purposes than that of a higher pressure and temperature. It throws less strain on the joints and cocks, and can be made by is no annoy condensation to give out all the heat that is needed. It is easy to see that there is some The main of To do this with the greatest economy, the whole of the drip must be returned to the boiler, and we find that not a drop of water is allowed to escape that can by any means ing, how carry any heat away with it.

The first requisite in saving all the hot water produced is to have a large and well well a protected tank. The factory being located in the midst of the boiler and machine shop district of Brooklyn, it was found that the cheapest tanks to be obtained were old boll-ers. Two of these were bought for a price but little exceeding their value as scrap. At the present moment they would probably sell for more than they cost.

would be a mere nothing, not amounting to comes a thick layer of hair felt. This is legs of the workman while a descending more than 8 or 10 per cent. of that of a bare wrapped in paper and another layer of felt draft of cold air from the windows cools put on outside. Paper and canvas inclose the whole. The pipe is 5-inch, but the outside diameter of the whole amounts to 12 inches. Through such a body of non-conditions are placed by the cold are from the window G, givinches. Through such a body of non-conditions are placed by the cold are from the window G, givinches. Through such a body of non-conditions are placed by the cold are from the window G, givinches with the cold are from the windo

that the steam leaves the engine tools, and drip is all carried forward. With rare exceptions both air cocks and drips from the coils lead into the return pipes, so that there is no annoyance of blowing off steam into

a single rising main to itself, arranged so that it may be cut off at pleasure from the others. Most of the coils are made in about 100-foot lengths. On one side of the building, however, there are doors which necessitate the breaking in two of some of the gin for further saving. scale the breaking in two or some of the coils. Fig. 7 illustrates how this is done, as well as the manner in which the coils and details of the pipes are arranged. The sections on each side of the door are made independent, although the one on the right is cheapest tanks to be obtained were old boilers. Two of these were bought for a price
but little exceeding their value as scrap. At
the present moment they would probably
sell for more than they cost.

defendent, attacks to be obtained were old boilfed from the other. There are in all about
4000 feet of 1½-inch pipe in the coils. The
contents of the building to be heated is
265,000 cubic feet. The distribution of the
steam is begun with 4 inch mains, which are

inches. Through such a body of non-conducting material, heat passes so slowly that it may almost be said to be impervious.

When it is desired to heat the building the exhaust is turned to the coils by shutting the stop-valve seen in Fig. 6. From the time essary for holding the stringer were made that the steam leaves the engine room, the by building pieces of iron rod into the wall yield to keep more than one large establish-

he building.

The main distribution of the steam in the which would enable us to institute a back pressure upon the engine, and taking the whole of the exhaust for the heating.

The main distribution of the steam in the which would enable us to institute a comparison between the economy attained here second floor, each system of coils having and that commonly obtained, but we know the whole of the exhaust for the heating. that the expense account is small. The whole cost of steam power, including engineer's wages and five chaldrons of coke, amounts to a little less than \$4.50 per day— a figure so small as to leave but little mar-

> Trade with Brazil.—The United States Consul-General at Rio de Janeiro, in a dispatch dated November 29, 1879, transmitting the annual report of the trade of Brazil, says: "The traders from the United States, who arrive by every steamer from New York, manifest industry and enterprise. The imports from Great Britain during the

of covering the loss of heat from such a pipe | Fig. 6. The inside layer is asbestos; then | stead of flowing out in a stream against the | increased, owing to the enlarged require- | The field is a wide one, and as the indus and in domestic uses, that the price has which all subsequent forms are produced.

The copper mines of this coast are now

being brought into activity, and those now worked are producing an ample supply for extensive rolling works. On this score there ment fully employed. Prominent among the copper mines of the Pacific coast are the San Francisco Copper Co.'s mine; the Battle Mountain mine; the Newton copper mine; the Eagle copper mine, and several others. com- The San Francisco can produce about 60 tons per month of precipitated copper; the others could probably be wrought up to a similar quantity, if not to a greater amount, Besides those named there are many mines that would be worked to advantage if there was a home market for the copper or for the ore. The expense of sending the ore abroad to be reduced to metal has been, and still is. so great as to amount to a prohibition of shipping it, except in choice lots of ex-Low grade ores would ceptionally rich ore. ceptionally rich ore. Low grade ores would entail a loss to the shipper who should send them abroad; while if reduction and rolling works were established at some central point, even the moderate profits which accrue to the miners from their sale would be a sufficient inducement for the continued de-velopment of the mines, more especially Fig. 5 shows how these boilers were placed and the general arrangement of the steam and drip pipes in the engine room.

The small one on the roof acts as a drip and cond-mare for the exhaust, while the

West increases, there must be a correspon of its manufactures, with an increasing market, but also from the fact that the in-trinsic value of the material used cannot deteriorate while the goods are on hand

A Large Steel Steamship .- The Inman Steamship Company have awarded to the Barrow Shipbuilding Company the contract for the building of the City of Rome, which is intended to be the finest and the largest ocean steamship afloat, excepting the Great Eastern. She is to be of 8300 tons measurement, and to be constructed of steel upon the cellular or double bottom system, with two longitudinal bulkheads through the boiler and engine spaces, and eleven transverse bulkheads. The dimensions are to be 546 feet in length on the keel, 590 feet long over all, 52 feet beam and 38% feet depth from the main deck. She will have four iron masts, three funnels three pairs of irverted direct-acting compound engines, eight boilers and 48 furnaces, with an estimated speed of 1814 knots an hour, having a power of 8500 horses. The saloon and stateroom are to be luxuriously furnished. There w.ll be accommodations for 300 saloon and over 1000 steerage passengers.

Dr. Percy, the veteran lecturer on metallurgy, has resigned his professorship at the Royal School of Mines, London, apparently because he objects to the removal of the Metals.

ANSONIA BRASS & COPPER CO.

No. 19 CHIT Street,
Phelps Building, NEW YORK MANUFACTURERS OF

BRASS AND COPPER

Sheets, Bolts, Rods, Wire, &c. Seamless Brass & Copper Tubing.

Ansonia Corrugated Stove Platforms. PURE COPPER WIRE

For Electrical Purposes, Bare and Covered. Phosphor Bronze Rods for Pumps, &c.

ANSONIA REFINED INCOT COPPER.

PHELPS, DODGE & CO.

TIN PLATE,

ROOFING PLATE,

Sheet Iron, Copper, Pig Tin, Wire, Zinc, &c. MANUFACTURERS OF

COPPER AND BRASS. CLIFF STREET, NEW YORK.

SCOVILL MFG CO

BRASS.

HINGES, WIRE, CERMAN SILVER

PHOTOGRAPHIC GOODS.

BUTTONS, CLOTH AND METAL.

DEPOTS. 419 & 421 Broome St., N. Y. 177 Devonshire St., Boston. 183 Lake St. Chicago.

FACTORIES, Waterbury, Conn. New Haven, Conn New York City.

DICKERSON, VAN DUSEN & CO., Tin Plate, Pig Tin, Sheet Iron, Cooper,

Wire, Zinc, Etc. 29 & 31 Cliff St., cor. Fulton, NEW YORK. DICKERSON & CO., Liverpool.

Established 1837.

Metals.



CAPITAL, . . \$400,000. Sheet, Roll and Platers' Brass, GERMAN SILVER.

Copper, Brass and German Silver Wire, BRASS AND COPPER TUBING COPPER RIVETS & BURS,

BRASS KETTLES. Door Rail, Brass Tags, PERCUSSION CAPS, POWDER FLASES,

Metallic Eyelets, Shot Pouches, Tape Measures, &c And small Brass Wares of every Description. Cartridge Metal in Sheets or Shells a Specialty Sole Agents for the Capewell Mfg. Co.'s Line of Sport-

ing Goods and Wood's Paper

Shot Shells DEPOTS: Willis At 296 Broadway, New York. WATERBURY, 189 Eddy St., Providence, R. I. Conn.



BROWN'S PATENT PICTURE

HOOK. Warranted to hold 100 lbs Manufactured only by

Manhattan Brass Co., 1st Ave., 27th to 28th St., New York. Solid brass, price, \$4 per gross, less 25 % discount.

THE NEW HAVEN COPPER CO.,

255 Pearl Street, New York.

Braziers' & Sheathing COPPER

Kettle Bottoms, Bolts, Circles, Rivets, Ingot Copper, Spelter, Solder, &c.

Incorporated 1876.

MFG. CO., WATERBURY

WATERBURY, CONN.

Brass and Iron Jack Chains, Silvered, Nickeled and Gilt Chains, Chisel Handle Ferrules, Brass Machine Screws,

Brass and Plated Safety Chains, Bath and Basin Chains, Brass Nuts and Washers, Special Brass Work.

Manufacturers, Importers and Dealers Wholesale and Retail, in all kinds of

Correspondence invited

N. & G. TAYLOR CO., Philadelphia. ESTABLISHED 1810.

PLATES.

N. & G. TAYLOR CO. TIN

Cheese Vats, Cream Pans, Milk Cans, Cotton Cans, &c.

Send for our special pr

Can make any size
Hoofing Tin,
Sheet Iron,
Sheet Lead.

ABRAM S. HEWITT, President WM. HEWITT, Vice President

JAMES HALL, Treasurer E. HANSON, Secretary

THE TRENTON IRON COMPANY,

TRENTON, NEW JERSEY,

OF ALL CRADES,

BRIGHT, ANNEALED, COPPERED, TINNED AND GALVANIZED Iron and Steel Wire Rods;

EXTRA QUALITIES OF BAR IRON AND RODS. Best Qualities of Gun-Screw and Charcoal Iron Wire;

Crucible, Siemens-Martin and Bessemer Steel Wire. Wire Straightened and Cut to Lengths.

Represented in New York by COOPER, HEWITT & Co., 17 Burling Slip.

BRODERICK & BASCOM,

IRON

800 N. Main St.



STEEL

St. Louis, Mo.

Metals.

The Plume & Atwood Mfg. Company,

MANUFACTURERS OF

SHEET and ROLL BRASS and WIRE,

German Silver and Gilding Metal,

Copper Rivets and Burs,

Kerosene Burners,

Lamp Trimmings, &c. 80 Chambers Street, New York. 13 Federal Street, Boston.

109 Lake Street, Chicago. Rolling Mill, Factories, THOMASTON, Ct. WATERBURY, Ct.

Bridgeport Brass Co.,

Sheet and Roll Brass, Brass & Copper Wire & Tubing, German Silver Metal and Wire, Copper and Iron Rivets.

OILERS and CUSPADORES, | LAMPS and TRIMMINGS, LANTERNS and TRIMMINGS, KEROSENE BURNERS, Clocks & Fly Fan Movements. PLUMBERS' MATERIALS. Particular attention paid to cutting out Blanks and anufacturing Metal Goods.

MANUFACTORY, WARRIOUSE Bridgeport, Conn. 19 Murray St., N. Y.

Harrison Wire Company

ST. LOUIS, MO.

HARVFACTURERS OF

All kinds of IRON & STEEL WIRE

Wire Mill Specialties.

Holmes, Booth & Haydens

WATERBURY, CONN. NEW YORK.

Manufacturers of all kinds of Brass, Copper & German Silver, ROLLED AND IN SHEETS.

BRASS & COPPER WIRE,

Tubing, Copper Rivets & Burs. BRASS & IRON

JACK CHAIN, DOOR RAIL. German Silver Spoons,

SILVER PLATED FORKS & SPOONS.

Kerosene Burners. &c. JOHN DAVOL & SONS

Brooklyn Brass and Copper Co., Ingot Copper, Spelter, Lead, Tin,

Antimony, Solder & Old Metals.

Manufacturers of

Pure Spelter

Cartridge Brass, Gas Fixtures, Bronzes AND ALL FINE WORK. Also for

Galvanizers & Brass Founders. MANNING & SQUIER, Gen'l Agents 113 Liberty Street, N. Y.

Geo. W. Prentiss & Co., HOLYOKE, MASS., MANUPACTURERS OF



Bright, Coppered, Annealed and Ti-Plated. Also GUN SCHEW WIRE.

GAUTIER



Patent Galvanizing, Rolling and Tempering,

WIRE

Established, 1831.

MANUFACTURERS OF IRON, AND IRON AND STEEL WIRE. Of Every Description

Mire, elc.

Washburn & Moen Mfg. Co.

WORCESTER, MASS.

CHARLES F. WASHBURN,

DRAWERS.

Capital, \$1,500,000

A SPECIALTY MADE OF GALVANIZED TELEGRAPH WIRE.

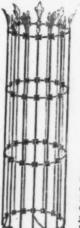
GALVANIZED TELEPHONE WIRE, PATENT STEEL WIRE BALE TIES, PATENT STEEL BARB FENCING. AND PUMP CHAIN.

NEW YORK OFFICE:

ST. LOUIS OFFICE: 707 No. Second St.

CHICAGO OFFICE. 215 and 217 Lake St

National Wire & Lantern Works,

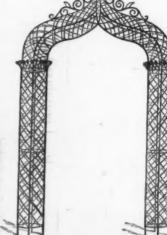


45 Fulton St., New York. HOWARD å MORSE. Brass, Copper & Iron

Warehouse,

Wire Cloth.

Locomotive Spark Wire Cloth, Iron Wire Holting Cloth, Ship & Railroad Lanterns, Signal Lights, Conductors' Lanters, Ad-justable Globe Hand Lantern, Desk & Office Railing, Riddles, Coal & Sand Screens, Nursery Fenders and Spark Guards, Ornamental Wire Fence.



WORKS

TRENTON.

ROEBLING'S

New York Office

117 Liberty Street JOHN A. ROEBLING'S SONS CO.,

WIRE ROPE

Iron, Steel and Copper

Hoisting Purposes of all kinds, for Ferries, Stays, Ship Rigging, Sash Cords, Lightning Rods, &c., &c. Suspension Bridge Cables.

GALVANIZED Telegraph Wire, Market Wire, Vineyard Wire.

Iron and Steel

WIRE Market Wire, Fence Wire Bridge Wire, Chain Wire, Buckle Wire, Spring Wire,

Rivet Wire, &c., &c. CALVANIZED WIRE CLOTHES LINES.

For Holsting, Running & Standing Ropes, Ferries, &c. CONSTANTLY KEPT ON HAND.

Address, HAZARD MFG. CO., Wilkesbarre, Luzerne Co., Pa.

FELTEN & GUILLEAUME. Carlswerk, near Cologne, Germany.

PATENT CRUCIBLE STEEL WIRE, For Mining and Plow Ropes, Hawsers and Bridge Cables

SIEMENS-MARTIN AND BESSEMER STEEL WIRE. Flusseisen, Swedish and German Charcoal Wire

GALVANIZED TELEGRAPH WIRE of Charcoal and Swedish Iron and Steel, also with high conductivity, and in long lengths. GALVANIZED STEEL WIRE,

For Plain, Barb and Strand Fencing, 3, 4 and 7-ply Strand, Staples, &c. Annealed and Oiled Fencing Wire, round and oval. WIRE ROPE

OF EVERY DESCRIPTION. TELEGRAPH CABLES. Contractors to the German and Foreign governments. The oldest house in the branch on the Con-nent. Telegraph Address, CARLSWERK, COLOGNE.

J. WOOL GRISWOLD,

Manufacturer of WIRE. TROY, N. Y.

CRAY ENAMEL WARE. W. T. WELLS. Sole Agent for FOXELL, JONES & CO., is now prepared to supply the wholesale trade only with Plain, Ground, Enameled and Tinned

HOLLOW WARE.

Gray Enamel Maskin Kettles and Stove Ware a specialty. This is the most durable enamel in the market Office and Warehouse, 78 Beckman St., N. Y

ROM

Brass, per a COPPE

Ro The Scho SOL Stereetype, Importers of B Lead, Spelter, & and all kinds of Street, between

S. I P. O. Box 13 Manufacti Hardware, Kerosene Go Late Ag Orders sent dir mediate profits.

R. SE Dealer

Tin Plate,





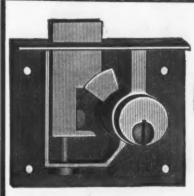
aned, Brass and Tin-Plated BIRD CAGES.

ntors and patent ces of Bright Metal.
Cagre, constructed
without solder, we
are enabled to sell
our Brass and Tin-Plated Cages cheaper than any other

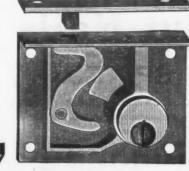
254 Pearl St. NEW YORK. CARY & MOEN.



Market Steel Wire, Crinoline Wire, tempered and covered Also Patent Tempered Steel Furniture Springs, constantly on hand.



LOCKS,

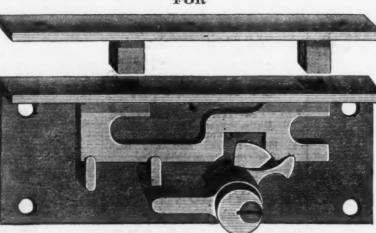


CUPBOARDS DESKS.

CHESTS.

BOXES, DRAWERS,

Etc.



CUPBOARDS, DESKS, BOXES, DRAWERS. Etc.

CHESTS,

MADE ONLY BY THE

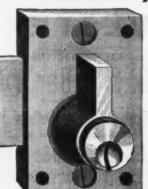
LOCK MFG.

Office and Works:

STAMFORD, CONN.

Salesrooms:

53 Chambers St., New York. 36 Pearl St., Boston. 506 Commerce St., Philadelphia



WIRE RAILING

Ornamental Wire Works.

DUFUR & CO.,

No. 36 North Howard St., Baltimore.

Manufacture WIRE RAILING for Cometeries, Balconies, &c.; Sieves, Fenders, Cages, Sand and Coal Screens, Woven Wire, Iron Bedstoads, Chairs,

ROME IRON WORKS, Manufacturers of

C.

4,

D

cing

only

per and German Silver (In Sheets, Rods, Tubing or Wire),

COPPER & BRASS RIVETS AND BURS.

Rome, New York.

I. SCHOENBERG, Pres. S. BLONDHEIM, Sec'y The Schoenberg Metal Mfg. Co., SOLDER, TYPE. Stereotype, Electrotype and Babbitt Metals, Importers of Block Tin, Antimony, &c. Refiners of Lead, Spelter, &c. Highest price paid for Old Metals and all kinds of Dross. 511 and 513 East 19th bireet, between Avenues A & B, New York.

S. L. SAMUEL. P. O. Box 1300. 57 Cedar St., N. Y. Manufacturers' EXPORT Agent for Hardware, Brassware, Glassware, WOODEN WARE, Merosene Goeds, Burners, Wicks, Oil. Late Agent for Will. Sanuel & Co. Orders sent direct will save the purchaser all inter-mediate profits.

R. SELLEW & CO. Dealer in METALS, Tin Plate, Sheet Iron, Copper, &c. SAINT LOUIS.



MONITOR TIN PLATE WORKS.

54 Cliff Street, New York

Manufacturers of LARGE TINNED SHEETS for DAIRY and OTHER PURPOSES, COTTON CANS, and all special sizes, shapes, gauges and qualities, from 10 to 40 inches wide, 10 to 96 inches long. Guaranteed Equal in Every Respect to Best Imported.

CONDIT, WICK & CO.,

Brass, Gilding Metal, Cop- Iron Manufacturers and Merchants,

Sheet, Tank and Plate Iron, Nails, Glass, Horse Shoes, Horse Nails, and other articles of HEAVY HARDWARE.

CLEVELAND, OHIO.

[See advertisement in The Iron Age of January 1, 1880.] WHEELER & MELICK CO., ALBANY, NEW YORK, U. S. A.,

FARM IMPLEMENTS IMPROVED AND MACHINERY.



Beardsley Scythe Co., GRASS, GRAIN & BUSH SCYTHES, Hay Knives & Corn Knives. West Winsted, Conn.

See our advertisement in The Iron Age first issue of each month.

MOULDERS

E. OLIVER'S



The above RIDDLE has been pronounced, after trial by some of the largest Founders, to be superior to any RIDDLE in the market. The attention of all parties requiring Sieves and Riddles is called to the merits and advantages of the IRON RIM ADJUSTABLE BOTTOM RIDDLES. They are made of brass, steel and galvantzed wire. We also keep in stock Oak Wood Rim Riddles, Wire Window Guards, and Wire Goods in general, at the Lowest Figures.

American Wire Works, 106 and 108 BEEKMAN STREET,

Melting Iron with Coal and Coke in Foundry Cupolas.

BY EDWARD KIRK.

I received several inquires lately from foundry men who have been accustomed to melting with coal as to how many pounds of iron can be melted to the pound of coke, and as to how a cupola should be charged when melting with coke; and from foundry men who have been accustomed to melting with coke I have received the same inquiries about melting with coal. All this information, to-gether with accounts of melting and descrip-tions of the methods of charging cupolas with coal and coke in various foundries, will be found in my work, "The Founding of Metals," and below I give an accurate account of a week's melting done in two of our leading stove manufactories. In each of the statestove manutactories. In each of the statements is given the amount of fuel in the bed, the amount of fuel in each charge, and the amount of iron on the bed and on each charge of fuel. The cupola used by the Excelsior Manufacturing Company is a round one, with a shell 6 feet 2 inches in diameter. It is lined with 8-inch brick to about 12 inches above the typerse and with about 12 inches above the tuyeres, and with 6-inch brick from there up. Seventy-two small round tuyeres arranged in four superposed rows are used in this cupola, and are supplied with air from an air chamber sur-

supplied with air from an air chamber surrounding the cupola. The cupola used by Rathbone, Sard & Co. is a round one, with a shell 6 feet in diameter, lined with 6-inch brick from the bottom up. Eight oval tuyeres arranged at equal distances apart are employed in this cupola.

Melting done with coke at the foundry of the Excelsior Manufacturing Company, at St. Louis, Mo., for the week ending Augut 25, 1877. Table showing the amount of coke required to melt iron and their mode of charging the cupola when melting with coke. In these heats 40 pounds of coke are counted to the bushel and the coke was the best Connellsville. the best Connellsville

Date. 1877.	No. of chges.	Bush Coke	Total Bushels Coke	Lbs. Iron to charge.	Total Lbs. Iron.
Aug. 20	2 5 4 3 4	45 6 7 6 7	45 30 28 18 28	3,000 3,000 3,000 3,000 3,000	3,000 15,000 12,000 9,000 12,200
Aug. 21	5 4 3 4 	45 6 7 6 7	45 30 28 28 28	3,000 3,000 3,000 3,000 3,250	3,000 15,000 12,000 9,000 13,000
Aug 22	5 4 3 4 1	45 6 7 6 7 10	45 30 28 18 28 10 759	3,000 3,000 3,000 3,000 3,000 4,300	3,000 15,000 12,000 9,000 12,000 4,300
Aug. 23	3 4 3 6	45 6 7 6 7	45 30 28 18 42 163	3,000 3,000 3,000 3,000 2,900	3,000 15,000 12,000 9,000 17,400
Aug. 24	5 4 3 6	45 6 7 6 6 6 6 7	45 30 28 18 40 161	3,000 3,000 3,000 3,000 4,733	3,000 15,000 12,000 9,000 16,400 55,400
Aug. 25	1 5 4 3 4	45 6 7 6 7	45 30 28 18 28 	3,000 3,000 3,000 3,000 3,000	3,000 85,000 82,000 9,000 83,500

Note.—The first charge in each table is the bed

Total coal used...5,550 | Total iron melted.37,∞0 September 1, 1877.

Total coal used ... 5,550 Total iron melted. 37,000 September 3, 1877. Seventh Eighth

Coal in bed. Fifth Sixth

September 5, 1877. Second Third

NEW YORK.

Total coal used .. 5,550 Total iron melted. 36,400

*Published by David Williams, 83 Reade Street, New York. Price \$2.50

September 6, 1877.

Coal in be	ed .		1,400	Iron on be	ed		7,200
First char	rge (coal	400	Second ch	arge	ron	3,600
Second	14		250	Third	6.0		3,600
Thi d	4.6		400	Fourth	6.0		3,600
Fourth	0.0		400	Fifth	4.6		3,600
Fifth	6.5		400	Sixth	6.6		3,600
Sixth	0.0		400	Seventh	0.0		3,600
Seventh	6.6		400	Eighth	0.0		3,600
Eighth	0.0		400	Ninth	6.6		3,600
Ninth	0.0		100	Tenth	0.0		400

The above statement does not represent the entire amount of iron melted by Rath-bone, Sard & Co. in one week, but only the amount melted in one of their cupolas

The New York State Interest Law.

The legal rate of interest in New York State on and after January 1 is changed from 7 to 6 per cent. Following is the new

Section 1. Section 1 of title 3, chapter part 2 of the Revised Statutes, entitled "Of the Interest of Money," is hereby amended so as to read as follows: "Section I. The rate of interest upon loans or forbearances

rate of interest upon loans or forbearances of any money, goods or things in action shall be \$5 upon \$100 for one year, and after that rate for a greater or less sum or for longer or shorter time; but nothing herein contained shall be construed as in any way to affect any contract or obligation made before the passage of this act."

Considerable discussion has arisen as to whether the date of passage referred to in the law is the date when it takes effect (January I, 1830) or the date of approval (June 20, 1879). The Attorney-General has given an opinion that the former is the date of passage and that legal contracts made before this date are exempt from its operation. The Albany Law Journal has taken issue with the Attorney-General, holding that no legal contract for more than 6 per cent, can be made after June 20, 1879, the writer of the artiple assuming that the passage of the act made after June 20, 1879, the writer of the article assuming that the passage of the act in June amounted only to ample notice that in June amounted only to ample notice that after January I the rate would be 6 per cent, and that all contracts made after such notice to extend beyond the coming date would be illegal. The Journal of Commerce recently combatted this theory as follows: "This assertion overlooks the fact that the exception clause in the law was wholly unnecessary as far as the rights of such contractors are concerned. This is provided for in the Constitution, and no act of the Legislature can violate it. A contract to for in the Constitution, and no act of the Legislature can violate it. A contract to pay interest at the rate of 7 per cent. for a given term of years was legal in this State, and so continues to be legal until there is a law to prohibit it. A law will go into operation on January I to prohibit it, but a notice of the fact that such a law will operate at such a date cannot abrogate a contract for a higher rate previously made according to such a date cannot alrogate a contract for a higher rate previously made according to the law now in operation, and extending by its terms into the future. Such contracts will bear 7 per cent. interest until they ma-ture." The discussion of the question will probably never be closed until the courts have passed upon it.

have passed upon it.

A legal gentleman of high repute and an A legal gentleman of high repute and an ex-judge has given it as his opinion that all contracts made before January 1, 1880, and by their terms bearing 7 per cent. interest, will continue at the same rate until the date of their maturity; that all contracts of this character, in which it is expressly stipulated that 7 per cent. interest shall be paid on the amount due until the principal is all returned, will also bear 7 per cent. interest up to the day of final payment, although the principal is already due and payable; that all contracts not originally subject to either of the conditions that would extend the 7 per cent, interest beyond January 1, may be

ries, as expressed by their laws, in regard .. 1,000 to money borrowing and lending Of the entire number ten only have what may be called a "cast-iron interest law." These are Alabama, Connecticut, New Jersey, Delaware, Maryland, New Hampshire, Pennsylvania, Vermont, West Virginia and Colorado. In all the other States and Territories a higher rate of interest than that fixed aware, Maryland, New Hampshire, Penns, Son Salvania, Vermont, West Virginia and Colonia, Son Salvania, Sal either verbally or in writing. In some cases a limit to agreement is prescribed. In others there is no such limit. The rates in the above-mentioned "cast iron" States are as follows: Delaware, Maryland, New as follows: Delaware, Maryland, New Hampshire, Pennsylvania, Vermont and West Virginia, 6 per cent.; Connecticut and New Jersey, 7 per cent.; Alabama, 8 per cent.; Colorado, 10 per cent. For the rest the law—which, as above shown, may Total coal used...5,450 Total iron melted.36,000 as follows:

Six Per Cent.—Arkansas, District of Columbia, Illinois, Indiana, Iowa, Kentucky,

Six Per Cent.—Arkansas, District of Columbia, Illinois, Indiana, Iowa, Kentucky,

Louisiana, Maine (where the law allows parties to agree in writing to any rate),

Massachusetts (where the law is the same as in Maine), Mississippi, Missouri, North Carolina, Ohio (where the law allows no higher than 8 per cent, under any circumstance) Fourth 10 400 Sixth 10 3,600 Sixth 10 5,500 Eighth 10 400 Sixth 10 400 Sixth 10 5,600 Eighth 10 400 Eighth 10 400 Eighth 10 3,600 Eighth 10 400 Total coal used 10 5,500 Total iron melted 36,000 Eighth 10 400 Total coal used 10 5,500 Total iron melted 36,000 Eighth 10 5,500 Eighth 10 5,

Seven Per Cent .- Dakota, Georgia, Kansas, Michigan, Minnesota, South Carolina and Wisconsin. In Dakota, Georgia, Kansas and Minnesota parties may contract as high as 12 per cent. In Michigan and Wis-3.600 3.600 3.600 South Carolina the usury laws are practi-cally abolished and parties may agree to 400 any rate, provided the agreement is in

Metals.

ANSONIA BRASS & COPPER CO.,

No. 19 Cliff Street, ling, NEW YORK

BRASS AND COPPER

Sheets, Bolts, Rods, Wire, &c. Seamless Brass & Copper Tubing.

Ansonia Corrugated Stove Platforms. PURE COPPER WIRE

For Electrical Purposes, Bare and Covered. Phosphor Bronze Rods for Pumps, &c.

ANSONIA REFINED INCOT COPPER.

PHELPS, DODGE & CO

IMPORTERS OF

TIN PLATE, ROOFING PLATE,

Sheet Iron, Copper, Pig Tin, Wire, Zinc, &c.

MANUFACTURERS OF

COPPER AND BRASS

NEW YORK.

SCOVILL MFG CO

BRASS. HINCES, WIRE, CERMAN SILVER

PHOTOGRAPHIC GOODS. BUTTONS,

CLOTH AND METAL. DEPOTS, 419 & 421 Broome St., N. Y. 177 Devonshire St., Boston. 183 Lake St., Chicago.

FACTORIES, Waterbury, Conn. New Haven, Conn New York City.

DICKERSON, VAN DUSEN & CO., Importers of

Tin Plate, Pig Tin, Sheet Iron, Copper, Wire, Zinc, Etc. 29 & 31 Cliff St., cor. Fulton,

NEW YORK. DICKERSON & CO., Liverpool.

Metals.



Waterbury Brass Co.

CAPITAL, - . \$400,000. Sheet, Roll and Platers' Brass, GERMAN SILVER,

Copper, Brass and German Silver Wire BRASS AND COPPER TUBING, COPPER RIVETS & BURS,

BRASS KETTLES, Door Rail, Brass Tags, PERCUSSION CAPS,

POWDER FLASES, fetallic Eyelets, Shot Pouches, Tape Measures, &c And small Brass Wares of every Description. Cartridge Metal in Sheets or Shells a Specialty. Sole Agents for the Capewell Mfg. Co.'s Line of Sport-

ing Goods and Wood's Paper Shot Shells. Mills At DEPOTS: 296 Broadway, New York, WATERBURY

189 Eddy St., Providence, R. I.



BROWN'S PATENT **PICTURE**

Conn.

HOOK

Warranted to hold 100 lbs. Manufactured only by Manhattan Brass Co., 1st Ave., 27th to 28th St.,

Solid brass, price, \$4 per

gross, less 25 % discount.

THE NEW HAVEN COPPER CO.,

255 Pearl Street, New York.

Braziers' & Sheathing COPPER.

Kettle Bottoms, Bolts, Circles, Rivets, Ingot Copper, Spelter, Solder, &c.

Incorporated 1876. Established 1837. MFG. CO., WATERBURY

WATERBURY, CONN.

Brass and Iron Jack Chains, Silvered, Nickeled and Gilt Chains, Chisel Bandle Ferrules. Brass Machine Screws,

Brass and Plated Safety Chains, Bath and Basin Chains, Brass Nuts and Washers, Special Brass Work.

Correspondence invited.

N. & G. TAYLOR CO. Philadelphia. ESTABLISHED 1810.

Manufacturers, Importers and Dealers Wholesale and Retail, in all kinds of

PLATES TIN N. & G. TAYLOR CO.

Cheese Vats, Cream Pans, Cotton Cans, &c.
Send for our special prices an

Can make any size
Hoofing Tin,
Sheet Iron,
Sheet Lead.

ABRAM S. HEWITT, President.

JAMES HALL, Treasurer

WM. HEWITT, Vice President. TRENTON IRON COMPANY

TRENTON, NEW JERSEY, MANUFACTURERS OF

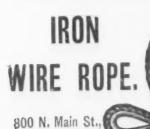
OF ALL GRADES,

BRIGHT, ANNEALED, COPPERED, TINNED AND GALVANIZED Iron and Steel Wire Rods;

EXTRA QUALITIES OF BAR IRON AND RODS. Best Qualities of Gun-Screw and Charcoal Iron Wire; Crucible, Siemens-Martin and Bessemer Steel Wire.

Wire Straightened and Cut to Lengths. Represented in New York by COOPER, HEWITT & CO., 17 Burling Slip.

BRODERICK & BASCOM.



STEEL

St. Louis, Mo.

Metals.

The Plume & Atwood Mfg. Company,

MANUFACTURERS OF

SHEET and ROLL BRASS and WIRE, German Silver and Gilding Metal,

Copper Rivets and Burs,

Kerosene Burners,

Lamp Trimmings, &c. 80 Chambers Street, New York.

13 Federal Street, Boston. 109 Lake Street, Chicago. Rolling Mill. Factories. THOMASTON, Ct. WATERBURY, Ct.

Bridgeport Brass Co.,

MANUFACTURERS OF

Sheet and Roll Brass, Brass & Copper Wire & Tubing, German Silver Metal and Wire, Copper and Iron Rivets.

OILERS and CUSPADORES, | LAMPS and TRIMMINGS, LANTERNS and TRIMMINGS, KEROSENE BURNERS, Clocks & Fly Fan Movements. PLUMBERS' MATERIALS. Particular attention paid to cutting out Blanks and manufacturing Metal Goods.

MARUPACTORT, WARRHOUSE,
Bridgeport, Conn. 19 Murray St., N. Y.

Harrison Wire Company

Twos. W. Fircu,

CHAS. FISH, Secretary MANUFACTURERS OF

All kinds of

IRON & STEEL WIRE

Wire Mill Specialties. Holmes, Booth & Haydens,

WATERBURY, CONN.

NEW YORK. 18 Federal St. Manufacturers of all kinds of

Brass, Copper & German Silver, ROLLED AND IN SHEETS.

BRASS & COPPER WIRE, Tubing, Copper Rivets & Burs.

BRASS & IRON JACK CHAIN, DOOR RAIL.

German Silver Spoons,

SILVER PLATED FORKS & SPOONS Kerosene Burners. &c.

JOHN DAVOL & SONS

Brooklyn Brass and Copper Co., Ingot Copper, Spelter, Lead, Tin,

Antimony, Solder & Old Metals.

Pure Spelter

Cartridge Brass, Gas Fixtures, Bronzes AND ALL PINE WORK. Also for

Galvanizers & Brass Founders. MANNING & SQUIER, Gen'l Agents 113 Liberty Street, N. Y.

Geo. W. Prentiss & Co., HOLYOKE, MASS., MANUPACTURERS OF



GAUTIER



See page 30.

Wire, elc.

CHARLES F. WASHBURN, Washburn & Moen Mfg. Co.

Established, 1831. Capital, \$1,500,000 WORCESTER, MASS.

DRAWERS Patent Galvanizing, Rolling and Tempering. MANUFACTURERS OF

IRON, AND IRON AND STEEL WIRE. Of Every Description.

A SPECIALTY MADE OF

GALVANIZED TELEGRAPH WIRE. GALVANIZED TELEPHONE WIRE, PATENT STEEL WIRE BALE TIES, PATENT STEEL BARB FENCING, AND PUMP CHAIN.

NEW YORK OFFICE:

ST. LOUIS OFFICE:

CHICAGO OFFICE: 215 and 217 Lake St.

National Wire & Lantern Works,



HOWARD å MORSE.

Warehouse,

Manufacturers of Brass, Copper & Iron

Wire Cloth, Locomotive Spark Wire Cloth, Iron Wire Bolting Cloth, Ship & Railroad Lanterns, Signal Lights, Conductors' Lantern, Adjustable Globe Hand Lan tern, Desk & Office Railing, Riddles, Coal & Sand Screens, Nursery Fenders and Spark Guards, Orna-

ROEBLING'S

TRENTON,

mental Wire Fence.

New York Office Warehouse

117 Liberty Street JOHN A. ROEBLING'S SONS CO.,

MANUFACTURERS OF WIRE ROPE

Iron, Steel and Copper

WORKS

Hoisting Purposes of all kinds, for Ferries, Stays, Ship Higging, Sash Cords, Lightning Rods, &c., &c.

GALVANIZED Market Wire,

Telegraph Wire, Vineyard Wire.

Iron and Steel WIRE

Market Wire, Fence Wire Bridge Wire, Chain Wire, Buckle Wire, Spring Wire, Rivet Wire, &c., &c.

Suspension Bridge Cables. CALVANIZED WIRE CLOTHES LINES.

IRON AND STEEL WIRE ROPE

For Holsting, Running & Standing Kopes, Ferries, &c. CONSTANTLY KEPT ON HAND. Address, HAZARD MFG. CO., Wilkesbarre, Luzerne Co., Pa.

FELTEN & GUILLEAUME.

Carlswerk, near Cologne, Germany. PATENT CRUCIBLE STEEL WIRE, For Mining and Plow Ropes, Hawsers and Bridge Cables.

SIEMENS-MARTIN AND BESSEMER STEEL WIRE, Flusseisen, Swedish and German Charcoal Wire GALVANIZED TELEGRAPH WIRE

of Charcoal and Swedish Iron and Steel, also with high conductivity, and in long lengths. GALVANIZED STEEL WIRE. For Plain, Barb and Strand Fencing, 3, 4 and 7-ply Strand, Staples, &c. Annealed and Oiled Fencing Wire, round and oval.

WIRE ROPE OF EVERY DESCRIPTION.

TELEGRAPH CABLES. Contractors to the German and Foreign governments. The oldest house in the branch on the Con-inent. Telegraph Address, CARLSWERK, COLOGNE.

J. WOOL GRISWOLD.

Manufacturer of WIRE.

TROY, N. Y.

GRAY ENAMEL WARE. W. T. WELLS,
Sole Agent for FOXELL, JONES & CO.,
is now prepared to supply the wholesale trade only
with Plain, Ground, Enameled and Tinned

HOLLOW WARE.

Gray Enamel Maslin Kettles and Stove Ware a spicialty. This is the most durable enamel in the marks Office and Warehouse, 78 Beckman St., N. Y

per : (In COPPI R

RON

Brass.

I. SCHOENBER The Sch SOL Stereotype

S. P. O. Box : Manufac Hardware Kerosene

Orders sent of dediate profit R. SE Dealer Tin Plate



O. LINDEMANN & CO.

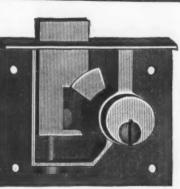
BIRD CAGES.

Being the inventors and patent ees of BRIGHT METAL CAGES, constructed without solder, we are enabled to sell our Brass and Tin-Plated Cages cheap than any othe

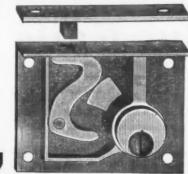
254 Pearl St., NEW YORK. CARY & MOEN,



Market Steel Wire, Crinoline Wire, tempered and covered Also Patent Tempered Steel Furniture Springs, constantly on hand 934, 936 and 938 West 99th Street, NE



LOCKS,



CHESTS. CUPBOARDS,

DESKS,

DRAWERS,

BOXES,

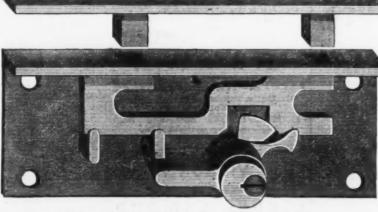
Etc.

el

E,

3 E

e Con-



CUPBOARDS, DESKS, BOXES, DRAWERS,

Etc.

CHESTS,

MADE ONLY BY THE

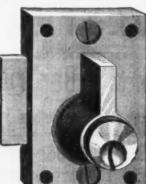
MFG. LOCK



STAMFORD, CONN.

Salesrooms:

53 Chambers St., New York. 36 Pearl St., Boston. 506 Commerce St., Philadelphia



WIRE RAILING

Ornamental Wire Works.

DUFUR & CO.,

No. 36 North Howard St., Baltimore.

Mulacture WIRE RAILING for Cemeteries, Balconies, &c.; Sieves, Fenders, Cages, Sand and Coal Screens, Woven Wire, Iron Bedsteads, Chairs, Settles, &c.

ROME IRON WORKS.

per and German Silver (In Sheets, Rods, Tubing or Wire),

COPPER & BRASS RIVETS AND BURS.

Rome, New York.

I. Schoenberg, Pres. S. Blondheim, Sec'y The Schoenberg Metal Mfg. Co., SOLDER, TYPE,
Storeotype, Electrotype and Babbitt Metals,
Importers of Block Tin, Antimony, &c. Refiners of
Lead, Speltor, &c. Highest price paid for Old Metals
and all kinds of Dross. 511 and 513 East 19th
Street, between Avenues A&B, New York.

S. L. SAMUEL. P. O. Box 1300. 57 Cedar St., N. Y. Manufacturers' EXPORT Agent for Hardware, Brassware, Classware, Wooden WARE,
Kerosene Goods, Burners, Wicks, Oil.
Late Agent for WE. H. SAMUEL & Co.
Orders sent direct will save the purchaser all intermediate profits.

R. SELLEW & CO. Dealer in METALS, Tin Plate, Sheet Iron, Copper, &c. SAINT LOUIS.



MONITOR TIN PLATE WORKS.

54 Cliff Street, New York

Manufacturers of LARGE TINNED SHEETS for DAIRY and OTHER PURPOSES, COTTON CANS, Guaranteed Equal in Every Respect to Best Imported.

CONDIT, WICK & CO.,

Brass, Gilding Metal, Cop- Iron Manufacturers and Merchants,

Sheet, Tank and Plate Iron, Nails, Glass, Horse Shoes, Horse Nails, and other articles of HEAVY HARDWARE.

CLEVELAND, OHIO.

[See advertisement in The Iron Age of January 1, 1880.]
WHEELER & MELICK CO. ALBANY, NEW YORK, U. S. A.,

IMPROVED FARM IMPLEMENTS AND MACHINERY.



Beardsley Scythe Co., GRASS, GRAIN & BUSH SCYTHES, Hay Knives & Corn Knives. West Winsted, Conn.

See our advertisement in The Iron Age first issue of each month.

E. OLIVER'S PATENT ADJUSTABLE BOTTOM IRON RIM



American Wire Works,

106 and 108 BEEKMAN STREET,

Melting Iron with Coal and Coke in Foundry Cupolas

BY EDWARD KIRK

I received several inquires lately from foundry men who have been accustomed to melting with coal as to how many pounds of iron can be melted to the pound of coke, and as to how a cupola should be charged when meltto how a cupola should be charged when melting with coke; and from foundry men who have been accustomed to melting with coke I have received the same inquiries about melting with coal. All this information, together with accounts of melting and des riptions of the methods of charging cupolas with coal and coke in various foundries, will be found in my work, "The Founding of Metals," and below I give an accurate account of a week's melting done in two of our leading stove manufactories. In each of the statestove manufactories. In each of the state stove manufactories. In each of the statements is given the amount of fuel in the bed, the amount of fuel in each charge, and the amount of iron on the bed and on each charge of fuel. The cupola used by the Excelsior Manufacturing Company is a round one, with a shell 6 feet 2 inches in diameter. It is lined with 8-inch brick to ameter. It is lined with 8-inch brick to about 12 inches above the tuyeres, and with 6-inch brick from there up. Seventy-two small round tuyeres arranged in four superposed rows are used in this cupola, and are supplied with air from an air chamber surrounding the cupola. The cupola used by Rathbone, Sard & Co. is a round one, with a shell 6 feet in diameter, lined with 6-inch brick from the bottom up. Eight oval tuyeres arranged at equal distances apart are employed in this cupola.

Melting done with coke at the foundry of the Excelsior Manufacturing Company, at St. Louis, Mo., for the week ending Augut 25, 1877. Table showing the amount of coke required to melt iron and their mode of charging the cupola when melting with coke. In these heats 40 pounds of coke are counted to the bushel and the coke was the best Connellsville.

Date.	No. of chges	Bush Coke to charge.	Total Bushels Coke	Lbs. Iron to charge.	Total Lbs. Iron.
Aug. 20	5 4 3 4	45 6 7 6	45 30 28 18 28	3,000 3,000 3,000 3,050	3,000 15,000 12,000 9,000 12,200
Aug. 21	17 5 4 3 4 	45 6 7 6 7	149 45 30 28 18 28	3,000 3,000 3,000 3,000 3,250	3,000 15,000 12,000 9,000 13,000
Aug. 22	2 5 4 3 4 2 x8	45 6 7 6 7	45 30 28 18 28 10	3,000 3,000 3,000 3,000 3,000 4,300	3,000 15,000 12,000 9,000 12,000 4,300 55,300
Aug. 23	5 4 3 6	45 6 7 6 7	45 30 28 18 42 163	3,000 3,000 3,000 3,000 2,900	3,000 15,000 12,000 9,000 17,400
Aug. 24	3 4 3 6	45 6 7 6 6 6 6 7	45 30 28 18 40 161	3,000 3,000 3,000 3,000 4,733	3,000 15,000 12,000 16,400
Aug. 25	5 4 3 4 -	45 6 7 6 7	45 30 28 18 28 28	3,000 3,000 3,000 3,000 3,375	3,000 15,000 12,000 9,000 13,500

Norg.—The first charge in each table is the bed harge.

Melting done with Lehigh coal at the foundry of Rathbone, Sard & Co., at Albany, N. Y., for the week ending Sept. 6, 1877. Table showing the amount of coal required to melt iron and their mode of charging the cupola when melting with coal:

August 31, 1877.

Lbs,
-2,400
-400
-250
-400
-400
-400
-400
-400
-400
-400 Fon on bed.
Second charge iron
Third
Fourth
Sixtn
Seventh
Eighth
Ninth September 1, 1877.

Total coal used...5,550 Total iron melted.37,000 September 3, 1877 Coal in bed.
First charge
Second
Third
Fourth
Fifth rge coal. Seventh Eighth Total coal used...5,450 Total iron melted. 36,000 September 4, 1877.

| 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. | 1, 1877. Coal in bed..... First charge coal. .. 3,600 .. 3,600 .. 3,600 .. 3,600 .. 3,600 .. 3,600 .. 3,600 Eighth Total coal used...5,450 Total iron melted.36,000 sachusetts) and Tennessee. September 5, 1877.

Second Third Fourth Fifth Sixth

NEW YORK.

Total coal used . . 5,550 Total iron melted . 36,400 Eight Per Cent.—Florida and Texas. In both of these States, however, usury laws

September 6, 1877.

Coal in b	ed .		1,400	Iron on be	ed	7,200
First cha	rge (coal	400	Second ch	arge iron	1 2,600
Second	66		250	Third		3,600
Thi d	4.6		400	Fourth		3,600
Fourth	0.0		400	Fifth		3,600
Fifth	5.6		400	Sixth		1,600
Sixth	0.6		400	Seventh		3,600
Seventh	6.6		400	Eighth		3,600
Eighth	0.0		400	Ninth		3,600
Ninth	0.0		100	Tenth		
Total co	oal u	sed 5	.550	Total iron	n melted.	36,400

The above statement does not represent the entire amount of iron melted by Rath-bone, Sard & Co. in one week, but only the amount melted in one of their cupolas.

The New York State Interest Law.

The legal rate of interest in New York State on and after January I is changed from 7 to 6 per cent. Following is the new

Section 1. Section 1 of title 3, chapter part 2 of the Revised Statutes, entitled "Of the Interest of Money," is hereby amended so as to read as follows: "Section I. The rate of interest upon loans or forbearances of any money, goods or things in action shall be \$6 upon \$100 for one year, and after shall be 50 upon free to one jumper or for less sum or for longer or shorter time; but nothing herein contained shall be construed as in any way to affect any contract or obligation made before the passage of this act." Considerable discussion has arisen as to

whether the date of passage referred to in the law is the date when it takes effect (January 1, 1880) or the date of approval (June 20, 1879). The Attorney-General has given an opinion that the former is the date of passage and that legal contracts made be-fore this date are exempt from its operation. The Albany Law Journal has taken issue with the Attorney-General, holding that no legal contract for more than 6 per cent. can be legal contract for more than 6 per cent. can be made after June 20, 1879, the writer of the article assuming that the passage of the act in June amounted only to ample notice that after January I the rate would be 6 per cent. and that all contracts made after such notice to extend beyond the coming date would be illegal. The Journal of Commerce recently combatted this theory as follows: "This assertion overlooks the fact that the exception clause in the law was wholly unnecessary as far as the rights of such conexception clause in the law was wholly unnecessary as far as the rights of such contractors are concerned. This is provided for in the Constitution, and no act of the Legislature can violate it. A contract to pay interest at the rate of 7 per cent. for a given term of years was legal in this State, and so continues to be legal until there is a law to prohibit it. A law will go into operation on Laurany, to prohibit it but a potion tion on January 1 to prohibit it, but a notice of the fact that such a law will operate at of the fact that such a law will operate at such a date cannot abrogate a contract for a higher rate previously made according to the law now in operation, and extending by its terms into the future. Such contracts will bear 7 per cent. interest until they mature." The discussion of the question will probably never be closed until the courts have passed upon it.

A legal gentleman of high repute and an exided has given it as his opinion that all

A legal gentleman of high repute and an ex-judge has given it as his opinion that all contracts made before January 1, 1880, and by their terms bearing 7 per cent. interest, will continue at the same rate until the date of their maturity; that all contracts of this character, in which it is expressly stipulated that 7 per cent. interest shall be paid on the amount due until the principal is all returned, will also bear 7 per cent. interest up to the day of final payment, although the principal is already due and payable; that all contracts not originally subject to either of the conditions that would extend the 7 per cent. interest beyond January 1, may be brought within the exception and continued at the existing rate by indorsing upon them, brought within the exception and continued at the existing rate by indorsing upon them, duly executed, a new contract for a consideration either extending the limit of maturity to a future date, or providing that they shall bear 7 per cent. Interest until wholly paid off and the obligation discharged. And that all other interest-bearing contracts, debts, obligations, advances and the like, will come under the operation of the new law, and bear only 6 per cent. Interest after the 1st of January.

The following statistics will show the sentiments of all the other States and Territories, as expressed by their laws, in regard to money borrowing and lending. Of the entire number ten only have what may be called a "cast-iron interest law." These

ed a "cast-iron interest law, are Alabama, Connecticut, New Jersey, Delaware, Maryland, New Hampshire, Pennsylvania, Vermont, West Virginia and Colorado. In all the other States and Territories a higher rate of interest than that fixed ries a higher rate of interest than that fixed by law may, under certain circumstances, be charged, as when the parties agree between themselves to the increased rate, either verbally or in writing. In some cases a limit to agreement is prescribed, In others there is no such limit. The rates in the above-mentioned "cast iron" States are follows: Delaware Mayland New the above-mentioned "cast iron" States are as follows: Delaware, Maryland, New Hampshire, Pennsylvania, Vermont and West Virginia, 6 per cent.; Connecticut and New Jersey, 7 per cent.; Alabama, 8 per cent.; Colorado, 10 per cent. For the rest the law—whigh, as above shown, may easily be evaded—fixes the rates of interest as follows:

Six Per Cent.—Arkansas District of Con-

Six Per Cent.—Arkansas, District of Columbia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine (where the law allows parties to agree in writing to any rate), Massachusetts (where the law is the same as in Maine), Mississippi, Missouri, North Carolina, Ohio (where the law allows no higher than 8 per cent. under any circumstances), Rhode Island (same law as Maine and Mas-

IRON & STEEL. 85, 87, 89 & 91 ELM ST., N. Y.

MIDVALE STEEL WORKS

Cast, Machinery, Tool, Spring, Tire, Sleigh Shor, Toe Calk, Plow and Blister Steel. Orders solicited for Steel Tyres and Axles,

Steel Forgings and Castings

PIERSON & CO.,

Established 1790,

24 & 26 Broadway, 77 & 79 New St. NEW YORK CITY,

Ulster

All Sizes and Shapes kept in Stock.

ABEEL BROTHERS.

Iron Merchants,

190 South Street and 365 Water, N. Y. ULSTERIRON

A full assortment of all sizes constantly on hand. Refined Iron, Horse-Shoe Iron, Common Iron. Band, Hoop and Scroll tron

Sheet Irua Norway Nail Rods. Norway Shares. Cast, Spring and Tire Steel, etc.

A. R. Whitney

48, 50 & 52 Thomas, and NEW YORK. 12, 14 & 16 Worth Sts., ')'ır specialty is in

"Pir specialty is in

Manufacturing Iron Used in the Construction of Pire-Proof Buildings,
Bridges, &c.

Plans and estimates furnished, and contracts made
for arecting Iron Structures of every description.
Books containing cuts of all Iron made sent on ap
pitcation by mail.
Sample pieces at office. Please address
58 Hudson Street.

BORDEN & LOVELL, **Commission Merchants**

70 & 71 West St.,

New York.

Fall River Iron Co.'s Nails, Bands, Hoops & Rods. AND

Borden Mining Company's Cumberland Coals.

WILLIAM H. WALLACE & CO., IRON MERCHANTS

Cor. Albany & Washington S's.,

NEW YORK CITY. WM. H. WALLACE.

DANIEL F. COONEY.

(Late of and Successor to Jan. H. Holdane & Co. SS Washington St., N. Y.

BOILER PLATES and SHEET IRON LAP WELDED BOILER FLUES, Boiler Rivets, Angle & T Iron, Cut Nails & Spikes



Houdlette & Ellis,

MERCHANT BAR IRON Homogeneous Steel and Iron Boiler Plates.

Sheet and Tank from. Boiler, Tank and Safe Rivets.

Best Lap-Welded Iron Boiler Tubes.

Wrought Iron Girder, Deck, and Channel Beams.
Angle, T and Grooved Iron.

St. cl and Iron Forgings, Bessemer Steel Cut Nails.

Genuine and Standard Babbitt Metals,

(Trescent Brand Journal Bearings.)

9 to 31 Batterymarch Street, Boston.

N. M. HÖGLUND'S SONS & CO., Stockholm. Swedish & Norway Iron of every description. Stock on hand at Boston, New York and Philadelphia. Importation orders a

GUSTAF LUNDBERG, 38 Kilby st., Boston. ALBERT POTTS, Philadelphia Agent, 234 & 236 N. Front Street. Kron.

NEW YORK.

OGDEN & WALLACE, A. B. Warner & Son, IRON MERCHANTS,

28 & 29 West and 52 Washington Sts. BOILER PLATE.

Beller Tubes, Angle, Tee & Girder Iron. Beller and Tank Rivets. Sole Agents for the celebrated

"Eureka," Pennocks, "Wawasset," Lukens,

Brands of Iron. Also all descriptions of Plate, Sheet, and Gasometer Iron. Special attention to Locomotive ron. Fire Box Iron a specialty.

ROME MERCHANT IRON MILLS,

Manufacturers of the best grade of

Bar Iron, Bands and Fine Hoops. s, Ovals, Half Ovals, Half Rounds, Hexagon an thoe Iron. Also from Charcoal Pig a superio of Iron branded J. G. All puddled balls re duced by hammer. Orders may be sent to the Mill or to J. O. CARPENTER, our Agent, at 59 John Street, New York.

MARSHALL LEFFERTS, MANUFACTURER AND DEALER.

Galvanized Sheet Iron,

1st and 2d Qualities. Galvanized Wire, Telegraph and Fence; Galvanized Hoop and Rand Iron, Galvanized Rod and Bar Iron, Galvanized Nails, Galvanized Chain, Galvanized Iron

CORRUGATED SHEET IRON For Roofing, &c., Galvanized, Plain or Painted. Best Charcoal, Best Refined and Com-SHEET IRON.

Plate and Tank Iron, C No. 1, C H No. 1, C H No. 1 Flange, Best Flange Best Flange Fire Box, Circles.

> BOILER IRON Stamped and Guaranteed.

All descriptions of Iron Work Galvanized of Finned to order.

Price list and quotations sent upon application.

JAMES WILLIAMSON & CO., SCOTCH AND AMERICAN

PIG IRON.

No. 69 Wall St., New York.

90 Broadway, New York.

Tuckerman, Mulligan & Co O. W. GRAVES & CO., METAL BROKERS,

Cor. Cliff and Beekman Sts., New York. TIN PLATE, PIG TIN, IRON WIRE, SHEET IRON, BRASS and COPPER GOODS, &c.

Passaic Rolling Mill Co.,

Iron Bridge Builders

Beams, Channels, Angles, TEES,

Merchant Iron, &c., &c.

vew York Office, 138 Chambers Street. WATTS COOKE, President, W. O FAYERWEATHER, Treasurer.

CARMICHAEL & EMMENS, DEALERS IN

Iron & Steel Boiler Plate Lap Welded Boiler Tubes, &c., &c.

130 & 132 Cedar Street, New York.

Agent for Otis' celebrated Cast Steel Boller Plates. The

Coatesville Iron Co. and The Laurel Rolling Mills. CORRUGATED AND CRIMPED IRON



MOSELLY IRON BRIDGE AND ROOF CO. 5 Des Street, New York.

P. W. GALLAUDET. Banker and Note Broker,

HARDWARE, METAL, IRON RUBBER, SHOE, PAPER AND PAPER-HANGINGS, LUMBER, COAL AND RAILROAD PAPER WANTED, ADVANCES MADE ON BUSINESSS PAPER AND OTHER SECURITIES.

NEW YORK.

Fron. NEW YORK

John W. Quincy,

Anthracite & Charcoal Pig Irons,

Wrought Borap, Cut Nails, Copper, BLOCK TIN, LEAD, SPELTER, ANTIMONY, NICKEL, &c

HARRISON & GILLOON IRON AND METAL DEALERS,

558, 560, 562 WATER ST., and 902, 804, 306 CHERRY ST. have on hand, and offer for sale, the following: Scotch and American Pig Iron, Wrought, Cast and Machinery Sorap Iron, Car-Wheels, Axies and Heavy Wrought Iron; also old Copper, Composition, Brass. Lead. Fewtor, Zinc, &c.

OXFORD IRON CO., (B. G. CLARKE, Receiver,)

Nails

J. S. SCRANTON, Sales Agent, 81, 83 and 85 Washington Street, NEW YORK.

SPIKES.

BURDEN'S

Burden Best" Iron

Boiler Rivets.

ULSTER IRON WORKS, Burden Iron Works, H. Burden & Sons,

Troy, N. Y.

ULSTER BURDENS

American & English Refined Iron.

EGLESTON BROS, & CO.

166 South St., NEW YORK CITY. B. F. JUDSON, Importer of and Dealer in

SCOTCH AND AMERICAN Pig Iron,

Wrought & Cast Scrap Iron,

OLD METALS.

W. S. MIDDLETON, IRON, Railroad, Mining and Steamship Supplies,

Machinery, Hardware & Tools, 52 JOHN STREET, NEW YORK

Glengarnock and Carnbroe SCOTCH PIG IRON.

For spot delivery and for prompt or forward shipments to New York, Boston, Philadelphia. Nos. 3 and 5 Wall Street, Baltimore or New Orleans. For sale in lots to suit by

JAMES LEE & CO., Sole Agents for the United 8 ates,

72 Pine Street, New, York.

NAIL

Hot Pressed Nuts, Bolts, Washers, &c. **FULLER BROTHERS & CO.,**

139 Greenwich Street, New York,

Fron.

PITTSBURGH.

W00D & CO.'S



PATENT Planished Sheet Iron.

Patented March 14th, 1865; April 8th, 1873; Sept. 9th, 1873; Oct. 6th, 1874; Jan. 11, 1876 Guaranteed fully equal in all respects to the

IMPORTED RUSSIA IRON, ind at a much less price. FOR SALE,

by all the principal METAL DEALERS In the Large cities throughout

THE UNITED STATES. And at their Office,

111 Water Street, PITTSBURGH, PA. The U. S. Iron and Tin Plate Co.,
OF PITTSBURGH, PA.,
Manufacture to order

Manufacture to order

BEST REFINED CHARCOAL AND
POLISHED SHEET IRON,
Taggers Iron and Bessemer Steet Plate,
in quality and size to suit the wants of consumers. Also Best Charcoal Terne Plates in Special
Sizes, from 10x17 to 20x30
Orders solicited. Inquirles promptly answered.
Address P. O. Box 24, Pittsburgh, Pa.
Works at Demmler, Allegheny Co., Pa.
Eastern Sales Agents:
1232 Market st., Phila.
114 John st., N. Y.
36 Oliver st., Boston.

C. KANE,

IRON and STEEL. Old Rails, Wheels, Axles, Springs, Scrap, Turnings, &c., PIG IRON, BLOOMS AND BAR IRON. Duquesne Way, near 6th Street, PITTSBURGH.

C. A. von Bonnhorst. R. A. WILSON & CO.,

PIG IRON, BLOOMS AND ORE,

88 Fourth ave., cor. Wood st., Pittsburgh. Bonnell, Botsford & Co., Iron, Nails & Spikes.

YOUNGSTOWN, OHIO.

BRADLEY, REIS & CO., NEW CASTLE, PA., Manufacturers of every description of

PLATE & SHEET IRON

Fron.

PITTSBURGH.

A. G. HATRY. Commission Merchant.

Bar, Sheet, Tank, Boiler, Angle, T, and Rallroad Iron. And Railroad Equipment.

Nails & Spikes Steel & R. R. Supplies. WINDOW GLASS, GAS PIPE & BORAX. PITTSBURGH, PA.

JUNIATA



Improved Snow Shoe Shapes.

Standard Sizes. %x7-16, 11-16x7-16, ½x7-16, 13-16x7-16, %x7-16, ½x½ STEEL TOE CALKS.

SHOENBERGER & CO., Pittaburgh. Portsmouth Iron and Steel Co.,

CAYLORD ROLLING MILL CO.,

Siemens-Martin (Open Hearth) STEEL BOILER PLATE,

Agricultural and Machinery Steel and Steel Tire.

Also, Homogeneous Iron Boller Plate and Rivets,
Merchant Bar, Hoop and Sheet Iron, Wrought
Spikes, Fish Bars and Bolts.

Office and Works:
PORTSMOUTH, OHIO. J. C. LEWIS, Pres't and Gen'l Sup't.

John I. Williams. Henry M. Long. Nathan M. McDowell. Keystone Rolling Mill,

Williams, Long & McDowell,

Merchant Bar and Skelp Iron, Sheets and Plates of all sizes,

Office, No. 87 Water Street,

Pittsburgh, Pa.

Pittsburgh, Pa.,

Wheeler's Iron & Steel Combination Shafting,

Under license of the Combination Trust Co., Philadelphia.

This Shafting is superior to any now on the market, and the attention of machinists is 457 & 450 Water St., NEW YORK. particularly called to it and a trial order solicited. Prices furnished on application.

LEECHBURG IRON WORKS. KIRKPATRICK, BEALE & CO.

FINE SHEET IRONS. TIN AND TERNE PLATES, made with Natural Gas as fuel, OFFICE, No. 116 Water St., Pittsburgh, Pa. WORKS, Leech

Mill, Allegheny City, Pa.; Office, Cor. Water and Market Sts., Pittsburgh, Pa.

ANDREW KLOMAN, fittsburgh, Pa., Manufacturer o STEEL AND IRON STRUCTURAL MATERIAL. Kloman Patent Universal Mill-Rolled Eye Bars.

Shovels, Riddles, Brushes, &c.

WHITEHEAD BROS. AMERICAN FACING CO.

WM. WHITEHEAD, Treas., 517 W. 15th St. New York.

MANUFACTURERS GEF AM GR PLU

Rail Gener

Aron.

Kron.

PHILADELPHIA. Siemens' Regenerative

RICHMOND & POTTS, 119 S. Fourth St., PHILADELPHIA, PA.

Or at the Works, JOHNSTOWN, PA.

The Cambria Iron and

RAILS.

have now an annual capacity of

100,000 Tons of Iron and Steel Rails, Splice Bars, &c.

ADDRESS.

CAMBRIA IRON COMPANY,

PHŒNIX IRON

410 Walnut Street, PHILADELPHIA.

CURVED, STRAIGHT AND HIPPED

Wrought Iron Roof Trusses, Beams, Girders & Joists,

DECK BEAMS, CHANNEL, ANGLE AND T BARS

PATENT WROUGHT IRON COLUMNS, WELDLESS EYE BARS,

For Top and Bottom Chords of Bridges.

Ratiroad Iron, Street Rails, Rail Joints and Wrought Iron Chairs.

REFINED BAR, SHAFTING, and every variety of SHAPE IRON made to Order.

ALAN WOOD & CO.,

MANUFACTURERS OF Patent Planished, Galvanized, Common, Best Refined, Cleaned and Charcoal Bloom

PLATE & SHEET IRON.

No. 519 Arch St., Philadelphia, Pa.

Orders solicited especially for Corrugated, Gasholder, Pan and Elbow, Water Pipe, Smoke Stack Last, Stamping, Ferrule, Locomotive Headlight and Jacket Iron.

JAS. ROWLAN

Squares, Flats, Bands and Hoop Iron. Correspondence with Dealers solicited

PENCOYD IRON WORKS. A. & P. ROBERTS & CO.,

CAR AXLES.

BAR, ANGLE, TEE AND CHANNEL IRON.

FOUNDRY FACINGS.

265 S. Fourth St., Philadel hia.

Kensington Iron, Steel & Nail Works,

920 North Delaware Ave., - - PHILADELPHIA,

Manufacturers of the

Anvil Brand Refined Merchant Bar Iron. Also, the James Rowland & Co. Kensington Nails, cut from their

ned Anvil stock. Also, Plow and Cultivator Steel, Rounds

Agents for the sale of Glamorgan Pig Iron

Kron.

PHILADELPHIA.

HENRY LEVIS & CO., Manufacturers' Agents

For Iron and Steel Rails, Car Wheels, Boiler and Sheet Iron and General Railway Equipments. Old Rails, Axles, and Wheels bought and sold. 234 S. 4th St., Philadelphia.

No. 218 South 4th Street, Philadelphia.

DAVID REEVES, President.

Or LENOX SMITH, New York Selling Agent, 46 Pine St., N. Y.

Edward J. Etting, IRON BROKER AND COMMISSION MERCHANT

230 S. Third St., Philadelphia, Pa.
Pig, Bar and Railroad Iron. Agent for the

Allentown Iron Co. and the Coleraine Furnaces. STORAGE WHARF & YARD,
DELAWARE AVENUE ABOVE CALLOWHILL STREET,
nnected by track with r road. Cash advances made on Iron

Chester Iron Company's PETER WRIGHT & SONS BESSEMER ORES.

Blue Ore, Red (Foundry) Ore, and a limited amount of the celebrated Brotherton (Foundry) Ore. Prices will be given on application to

J. WESLEY PULLMAN,

407 Walnut St., Philadelphia. D. W. R. READ. T. HORACE BROWN.

D. W. R READ & CO., General Commission Merchants,

ORES, METALS, &c. Spanish, Algerian and Domestic Ores or

Iron, Manganese, &c. 205% Walnut St., PHILADELPHIA.

J. J. MOHR, Iron Commission | Pig Iron, New and Old Rails, Scrap Iron, &c. Merchant.

No. 430 Walnut Street, Philadelphia

Sole Agent for the Sheridan and Leesport Furnace

J. W. HOFFMAN & CO., Iron Merchants & Railway Equipments.

208 South Fourth St., Philadelphia. Sole agents Glasgow Iron Co. and Pine Iron Works manufacturers of Muck Bar and all grades of Plate Iron. Celebrated "Glasgow" and "Pine" brands for fire boxes and difficult flanging. Pig and Bar Iron, Ralls and all shapes in Iron. Quotavions given on Bridge and Building Specifications.



LOCOMOTIVE AND CAR WHEEL TIRES, BRAND

J STANDARD. J

Works at Lewistown, Pa. Office, 220 S. 4th St., Philadelphia, Pa.

WROUGHT IRON

Boiler Tubes,

Steam, Gas and Water Pipe. Oil Well Tubing, Casing and

LINE PIPE. Cotton Presses, Forgings,

ROLLING MILL AND General Machinery.

READING IRON WORKS. 261 S. Fourth St., Philadelphia.

Connellsville Coke.

FRANCIS WISTER,

Fron.

JUSTICE COX, Jr CHARLES K. BARNS. JUSTICE COX. JR. & CO..

Chickies, St. Charles, Montgomery and Keystone

Foundry & Forge Pig Iron. CATASAUQUA MFG. CO'S Bar, Angle, Skelp and Sheet Iron. RAILROAD CAR AXLES.
EW AND OLD RAILS.
No. 333 Walnut St., Philadelphia. NEW

307 Walnut Street, Philadelphia, 59 Broadway, New York, 44 Second Street, Baltimore, Importers of

German and English

Pig, Scrap, NEW AND OLD RAILS. And Iron Ore.

E. W. CLARK & Co.

Bankers and Stock Exchange Brokers, No. 35 South Third St., Philadelphia.

CLARK, POST & MARTIN,

No. 34 Pine St., New York, Bankers and Railway Commission Merchants.

Importers of

MOSELEM, ROCKHILL, WARWICK, And other Favorite Brand

SILVER GREY IRON A SPECIALTY. L. & R. WISTER,

Brokers and Commission Merchants in Iron, Steel, &c.

A. PURVES & SON, Corner South & Pens Streets, Phila.,

Dealers in scrap Iron & Metals, Machinery, Tools, Shafting & Pulleys, Steam Engines, Pumps & Boilers, Copper, Brass, Tin, Babbit Metals, Foundry Facings. Best Quality Ingot Brass.

The Iron-Masters'

Exclusively for the

Analysis of Ores of Iron, Pig and Manufactured Iron, Steels, Limestone, Clays, Slags and Coal for Practical Metallurgical Purposes.

No. 339 Walnut St., Philadelphia. J. BLODGET BRITTON.

This laboratory was established in 1866, at the in stance of a number of practical Iron Masters, expressly to afford prompt and reliable information upon the chemical composition of the substances above mentioned, for smelting and refining purposes. The object being to make it at once a convenient, practically useful, and comparatively inexpensive adjunct to the Furnace, Forge and Rolling Mill.

CHARGES TO IRON WORKS.

For determining the per cent. of Pure Iron in an ordinary Ore..... an ordinary Ore.
For the per cent. of Pure Iron, Sulphur and
Phosphorus in do.....
For each additional constituent of usual oc-

For those of unusual occurrence or difficult to determine, the charge must necessarily depend upon circumstances.

For determining the per cent. of Sulphur or Phosphorus in Iron or Steel.

For each additional constituent of usual ec-

230 South Third Street, Philadelphia.

Best Coke for Furnace and Foundry Use.

Stances. Printed instructions for obtaining proper average samples for analysis furnished upon application.

J. F. BAILEY & CO.,

216 South 4th St., Philadelphia. Selling Agents 52 Wall St., (Room 8) New York.

ATKINS BRO'S-BEAMS, CHANNELS, RAILS, &c. A. & P. Roberts & Co.-Car Axles, Plates, Channels, Tee, Angle and Bar Iron.

Philadelphia Agents Central Iron Works, Harrisburg, Pa.—Boiler, Ship and Bridge Plates. WILLIAM McILVAIN & SONS-Boiler, Ship and Bridge Plates. BERWICK R. M. BARS AND SHAPE IRON.

EMPIRE CHAIN WORKS

All Chains tested by Improved Lever Testing Machine, and Certificate furnished. We refer, by permission, to John Reach & Son, Wm. Cramp & Sons, Harlan & Hollingsworth, Neafle & Levy, and others.

BRADLEE & CO., 816 Richmond St., Philadelphia, Pa.

have been altogether repealed, so that there

have been altogether repealed, so that there is nothing to prevent almost any rate of interest from being, at least, demanded.

Ten Per Cent.—California (where parties may agree to any rate), Idaho Territory (where 2 per cent. a month is lawful if agreed upon), Nebraska, Nevada, Oregon, Utah and Washington Territories.

Tivelve Per Cent.—Wyoming Territory, which, notwithstanding this generous legal margin of profit, permits any rate to be

margin of profit, permits any rate to be asked by the lender, if the borrower previously consents to it in writing.

Montana alone has never fixed any legal rate of interest. Borrowers and lenders in that picture que country make any sort of an off-hand "swap" that suits them.

The Effect of Reducing Agents upon Copper Alloys.

We had the pleasure quite recently to publish in *The Iron Age* full abstracts of Prof. Thurston's experiments with copper and tin alloys. These, it will be remem-bered, were made to ascertain the me-chanical properties of the alloys of the metals in varying proportions, no attempt having been made to investigate the effect of improved methods of casting, or of the addition of various substances destined to correct defects and insure sound castings. One of the principal dangers to be guarded againt in casting copper and its alloys is the oxidation of the metal and the absorption of the oxide formed, and it has been a great step toward improvement that metallurgists have learned to appreciate the value of certain substances, notably phosphorus and manganese, as reducing agents. The successful manufacture and the high quality of cessful manufacture and the high quality of the alloys known as phosphor-bronze and manganese bronze, are fully appreciated and have been repeatedly referred to in the columns of *The Iron Age*. It is much to be regretted that the short life of the United States Test Board has, for the time being, but off all hope of a tempiration of the J. O. RICHARDSON,
IRON COMMISSION MERCHANT,
No. 232 Dock St., Philadelphia.
Pig Iron, Railroad Iron and
Iron Ores.
Sole Agent for the MONOCACY FURNACE CO.
DEALER IN
MOSELEM, ROCKHILL, WARWICK,
States Test Board has, for the time being, cut off all hope of a termination of the experiments so auspiciously begun by Prof.
Thurston. We must for the present rest content with watching progress abroad, and it is with this object that we present the following abstract of a series of highly interesting researches made recently by M.
Michel Lévitzky, of Toula, Russia, published in the Revue Universelle des Mines of Liége.
M. Lévitzky adds to the two elements already mentioned (phosphorus and manga-

ready mentioned (phosphorus and manga-nese) a third, zinc, which to a certain de-gree acts similarly. The reducing power of these substances is approximately pro-portionate as follows: 2500 for phosphorus, 2460 for zine and 2902 for manganese, the latter having besides the advantage of re-maining fluid at a temperature approaching that of copper, while the two others, volati-izing more readily, cannot be added as easily, the introduction of phosphorus even causing dangerous explosions. With the object of studying the effects of these sub-stances upon the alloys of copper, M. Lévitz. ky carefully chose the same materials and processes throughout his experiments, and while the lack of proper apparatus prevented as thorough an investigation as was desired, notably as regards mechanical tests, they possess much interest, as they are in many respects the first of the kind presented.

The following analyses will show the na-ture of the materials used:

"DEMIDOFF" COPPER.

(Average of ten analyses)

FIEGEN SPIEGELEISEN

79.541 | Carbon...... 18.320 | Phosphorus..... TERRENOIRE FERROMANGANESE

The zinc used was best Silesia (specific gravity, 7.189), and the tin chosen was Bohemian (specific gravity, 7.283). The Manhès cupromanganese contained 25 per cent. manganese, the Lavrov phosphide of copper held 6.560 per cent. and 7.216 per cent. of phosphorus, respectively, and a lot of phosphide of copper washes as a lot of the copper held for the copper washes as a lot of the copper washe phide of copper made according to the Sidot process, 7.529 per cent. of phosphorus. The method employed by Sidot is the fol-Phosphorus is made to act up in a heated

ncentrated solution of s After one hour's boiling the solution los its color if there is phosphorus in excess. For each additional constituent of usual securities.

For each additional constituent of usual securities.

For the per cent. of Carbonate of Lime, and insoluble Silicious Matter in a Limestone. 10.00 or each additional constituent. 2.00 or the per cent. of Water, Volatile Combustible Matter, fixed Carbon, and Ash in Coal. 12.50 tible Matter, fixed Carbon, and Ash in Coal. 12.50 and the residue is washed until no trace of a cid can be detected in the water. The precipitate is spread on cloth and dried over at a low temperature. By this process many added to the boiling liquor until it regains its color. The solution is then decanted, and the residue is washed until no trace of a cid can be detected in the water. The precipitate is spread on cloth and dried over at a low temperature. By this process many epitate is spread on cloth and dried over at a low temperature. By this process many pounds of black phosphide of copper may be made in a few hours. The product should be black; it must not, as sometimes is the case, be greenish. The phosphide thus obtained is not decomposed either by exposure to the air or by contact with water. It melts at a red heat beging about water. It melts at a red heat, losing about 10 per cent, of its weight. A grayish-white metallic button is the result, so brittle that it may be reduced to powder under a ham-mer; but if the temperature is raised con-siderably a part of the phosphorus is ex-pelled, and after cooling a white mass is ob-tained which is as hard as steel. The black phosphide of copper possesses the valuable property of permitting the easy addition of known quantities of phosphorus to metals, whose qualities, as is well known, are there-by materially improved. The first series of experiments were made

with alloys of copper and zinc in varying proportions, each alloy being first melted alone and then receiving additions of cuprenanganese and spiegeleisen. The effect of both is striking, not only as regards the im-provement in tensile strength, but also ductility, the spiegeleisen (the third in each group), notably, being particularly effective. The ductility, malleability and hardness are un

ALLENTOWN ROLLING MILL COMPANY,

J. W. PAXSON & CO. | 514, 516 and 518 Beach St., Philadelphia, Pa.

ANTHRACITE,

CHARCOAL,

MINERAL.

Rails, Bars, Axles, Shafting, Fish Bars (Plain and Angle), Spikes, Rivets, Bolts and Nuts, &c. Bridges and Turn Tables. ral Office, 303 Walnut St., Philadelphia. Works at Allentown, Pa

AMERICAN I EAD,

GRAPHITE,

PLUMBAGO.

MANUFACTURE

THOMAS H. GARRETT.

ANDREW A. BLAIR.

MACHINERY SAND,

CHANDELIER "

STOVE PLATE "

BRASS

5

SAND

BOOTH, CARRETT & BLAIR,

SIEVES,

SHOVELS,

BRUSHES,

CRUCIBLES,

Analytical and Consulting Chemists, 919 and 921 Chant St. (10th St. above Chestnut St.), PHILADELPHIA, PA.

Analyses of Ores, Waters, Metals and Alloys of all kinds. A special department for the

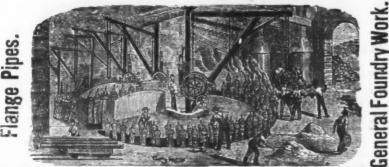
ANALYSIS OF IRON AND STEEL,

fitted with all the apparatus and appliances for the rapid and accurate analysis of Iron, Steel, Iron Ores, Siags, Limestones, Coals, Clays, Fire Sands, &c. All analyses made by the members of the firm. Price lists on application.

Established in 1836.

MCNEALS & ARCHER,

BURLINGTON, N. J.



IRON FOR WATER AND GAS.

ESTABLISHED IN 1848.

CO., SINGER, NIMICK

PITTSBURGH, PA. MANUFACTURERS OF ALL KINDS OF

HAMMERED AND ROLLED

Warranted Equal to any Produced.

BEST REFINED TOOL CAST STEEL

For Edge and Turning Tools, Taps, Dies, Drills, Punches, Shear-Knives, Cold-Chisels and Machinists' Tools generally.

SAW PLATES

For Circular, Mulay, Mill, Gang, Drag, Pit and Cross-Cut Saws.

Sheet Steel

For Springs, Billet Web and Hand Saws, Shovels, Cotton Gin Saws, Stamping Cold, &c., &c.

SIEMENS-MARTIN (Open-Hearth) PLATE STEEL

For Boilers, Fire-Boxes, Smoke Stacks, Tanks, &c.

All our Plate and Sheet Steel being rolled by a Patented Improvement is unequaled for surface Juish and exactness of gauge.

ROUND MACHINERY CAST STEEL

For Shafting, Spindles, Rollers, &c., &c. File, Fork, Hoe, Rake, R. R. Frog, Toe-Calk, Sleigh-Shoe and Tire Steel, &c.;
Cast and German Spring and Plow Steel.

"Iron Center" Cast Plow Steel,
"Soft Steel Center" Cast Plow Steel,
"Solid Soft Center" Cast Plow Steel.
Steel Forgings made to order.

Finished Rolling Plow Coulters with Pate it Screw
Habs attached.
Agricultural Steel cut to any pattern desired.

Represented at 59 BEEKMAN ST., NEW YORK, by HOGAN & BURROWS, Gen'l Agents for Eastern and New England States.

MIDVALE STEEL WORKS,

CRUCIBLE AND OPEN HEARTH STEEL.

TIRES AND AXLES

OF EVERY DESCRIPTION.



TOOL, MACHINERY AND SPRING STEEL CASTINGS AND FORGINGS.

WORES AND OFFICE Nicetown, Philadelphia, Pa

WARRHOUSE: 12 N. 5th St., Philadelphia, Pri.

ESTABLISHED 1847.

A. WHITNEY & SONS. PHILADELPHIA,

CHILLED RAILROAD WHEELS

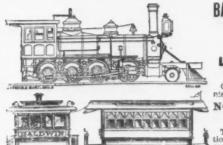
For every kind of service, including Street, Mine and Lumber Tramways. Wheels furnished in rough bered or on axles. Chilled castings made to order.

PENNSYLVANIA STEEL COMPANY Steel Rails, Frogs, Crossings & Switches.

Forgings for Piston Rods, Guide Bars, Wrist Pins and Machinery Purposes.

Works at Baldwin Station, Pennsylvania Railroad, near Harrisburg, Pa. Address all orders to

PENNSYLVANIA STEEL COMPANY, 208 South Fourth Street, Philadelphia.



BALDWIN LOCOMOTIVE WORKS BURNHAM, PARRY, WILLIAMS & CO., Proprietors, Philadelphia, Pa., U. S. A.,

Manufacturers of LOCOMOTIVE ENGINES

of every Description.

Catalogues, photographs and estimates fur-ished on application of customers.

NOISELESS STEAM MOTORS,

For city and suburban Railways.

These machines are nearly noiseless in operation; show no smoke with the use of anthracite coal or coke as fuel, and show no steam whatever under ordinary conditions of service. They can be run at two or three times the speed of horse cars and draw additional cars. Circulars with full particulars supplied.

WAREHOUSE

Address JOHN W. QUINCY, Manager, 98 William St., N. Y.

This steel is made from Chromium and Iron, and is remarkable for Strength, Burnbifity and Uniformity—Send for Circular, where the proof will show it does 25 to 75 per cent, more than other cast steel. It is adapted to all kinds of work where cast steel is used. Chrome Steel Castings from 25 to 590 lbs. to order.

Southern Advertisements.

ROANE IRON COMPANY.

Pig and Railroad Iron.

CHATTANOOGA, - - - TENN.

T. J. BROWN.

Rockwood, Tenn. Miner and Contractor of Fossiliferous Ores.

A superior article delivered at low figures at any furnace within the district or at any point on the Ohio River. Refer to Roane Iron Co., Chattanooga Iron Co., or S. B. Lowe, Chattanooga.

S. B. LOWE. Pig Iron, Storage &

Dealer in Charcoal and Coke Pig Iron for Foundry, Forge or Car Wheel purposes. Chattanooga, Tenn.

Commission.

MADE A SPECIALTY BY

TAYLOR BOGGIS.

65 to 73 Central Way,

CLEVELAND, OHIO.

Having extensive machine shop connected with foundry, we are enabled to fit up all kinds of light Hardware or patented articles. Correspondence solicited.

IRON AND STEEL DROP FORGINGS

All shapes, small and large, including
Gun, Pistol, Wrench Bars, &c. Also, Die Sinking. Manufacturers also of
Bricklayers', Moulders' and Plasterers' Tools, Saddlers'
Round and Head Knives.

WILLIAM ROSE & BROS.,

36th & Filbert Sts., West Philadelphia.

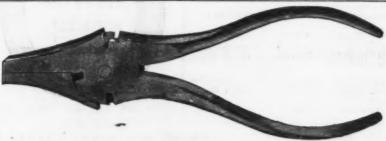
RICHARD P. PIM, Wilmington, Delaware,

IMPROVED PROCESS,

LIGHT GRAY IRON CASTINGS. Castings of Best Quality made to order at short notice.

BRITTON IRON AND STEEL CO., BOILER, TANK AND BRIDGE PLATES,

Galvanized and Black Sheet Iron. CLEVELAND, OHIO. Foot of Wasson Street,



M. KING & CO.,

WATERFORD, N. Y., Manufacturers of the BUTTONS PATENT

CUTTER AND PLIER COMBINED."

Specially Adapted for Use on Wire Fence. Also Manufacturers of

Blacksmith and Machinists' Stocks and Dies, Plug and Taper Taps,
Hand, Nut and Screw Taps, Pipe Taps and Reamers.

Price List on application.

Established by Daniel B. King, 1829.



CHALFANT MFG. CO.,

Office and Warehouse

435 Arch St., Philadelphia.

Owners and Manufacturers of the

Celebrated Patent Gas Heating Smoothing Iron.

Can be heated on any ordinary gas burner in three minutes. People who have to board cannot get along without them.

Also manufacturers of the

Improved Troy Polishing

Iron for laundry purposes. For sale by Hardware and Housefurnishing dealers. Liberal discount to the trade.

Est. in 1840 by
JOHN ROACH. ÆTNA IRON CO., WM. J. FRYER, Jr

Manufacturers of every description of Wrought and Cast ARCHITECTURAL IRON WORK FOR BUILDINGS.

86 to 108 Goerck Street, New York. CAST IRON.

WROUGHT IRON.
Stairs. Floors.
s and Doors, with Bridles, Truss
is fastenings.
Boits, for W.

Roofs. Stairs. Floors.
Shutters and Doors with
various fastenings.
Rolling Shatters.
Rolling Shatters.
Rinc-Proof Ceilings and
Frames.
Frattions. Latning.
Partitions. Latning.
Partitions. Locor-lights
Apple Shatters.
Rolled and Riveted Beams
and Girders.

Rolled and Riveted Beams
and Girders.

Rolled and Riveted Beams and Girders. Etc., Etc., Etc.

Wm. H. McMillan & Bro.,

Office, 113 South Street, New York.

cast in the state of the state

MINERS' CANDLES, TACKLE BLOCKS. Rope and Iron Strap of all kinds. Lig-Superior to any other Light for Mining umvitæ Wood for Ten-Pin Balls.

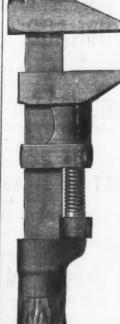
Purposes. Manufactured by

JAMES BOYD'S SON.

Factory, 32 to 40 Penn St., Brooklyn, H. D. Nos. 10 & 12 Franklin St., New York,

STANDARD GIRARD WRENCH.

WARRANTED.



STRENGTH

AND Durability

IT HAS NO SUPERIOR.

GUARANIEED IN EVERY RESPECT.

Wrought Bar, Head

we are now manu any other establish-

Our Wrench having been imitated by other manufactur ers, we have adopted the above Trade Mark, and will hereafter stamp all our

SEND FOR TERMS and PRICES.

GIRARD WRENCH MFG. CO., Girard, Pa. J. H. Ricketson. PITTSBURGH FOUNDRY.

A. GARRISON & CO.,

Chilled Sand and Patent Homogeneous Steel

Both Solid and Hollow,

Ore and Clay Pulverizers, Rotary Squeezers, Haskin's Patent Double Spiral Pinions, and Holling Mill Castings of every description.

OFFICE, 6 Wood St., - - PITTSBURGH. Bridgewater Iron Co., Bridgewater, Mass., Manufacturers of

SEAMLESS DRAWN COPPER AND BRASS TUBES, TACK PLATES, Forgings of every description. Bridgewater Iron Co.'s HORSE NAILS.

PRICE LIST. Nos.... 5 6 7 8 9 10 Per lb..26# 23# 21# 20# 19# 18# ounts to the Trade 73 Pearl Street, New York.
28 Broad Street, Beston.

R. COOK & SONS.

Carriage & Wagon AXLES. WINSTED, CONN.

ESTABLISHED 1919.

Coal.

A. PARDEE, Hazelton, Pa. J. G. FELL, Phila. A. PARDEE & CO.

303 Walnut St.,

PHILADELPHIA.

No. III Broadway, New York. MINERS AND SHIPPERS OF

Lehigh Coals.

Coals are mined by ourselves and firms connected

CRANBERRY, SUGAR LOAF A. Pardee & Co.

Pardee, Bro. & Co LATTIMER Calvin Pardee & Co. HOLLYWOOD. Pardee, Sons & Co. Mt. PLEASANT.

THE HOBOKEN COAL CO.,

SCRANTON, LEHIGH and other COALS. Retail Yard on D. L. & W. Railroad, cor. Grove and 10th sts. Jersey City. Coal delivered direct from shutes to carts and wagons. Families and manufactories subplied with the best qualities of Coal at the lowest rates. Offices: At yard cor. Grove and 10th 88s.; cor. Bay st. and Newark av., Jersey City; Room 35; 111 Broadway, N. Y. General Office, Bank Ruilding, cor. Newark and Hudson sts., Hobokess. F. O. Box 24, Hoboken.

and Screw. Owing to the increased demand for these justly Popular Wrenches, facturing more than ment in the world.

> IRO Pov Galv

> > Wareh

Full S

Hard

All king BL

ASPHALTUM and all kinds of BLACK VARNISHES.

BE

over 800 different styles.

PUMPS, STEAM PUMPS, ROTARY PUMPS, CENTRIFUGAL PUMPS, PISTON PUMPS, PISTON PUMPS, for Tanners, Paper Mills, Fire Purposes, suitable for all situations imaginable.

W. & B. DOUG Middletown, Conn.,

Middletown, Conn.,

The Oldest and Most Extensive Manufacturers of

Fig. 99%.

Also, HAND FIRE ENGINES. RUMSEY & CO.,

Seneca Falls, N. Y., U. S. A.

RANCH HOUSES: 95 Liberty St., New York, and
Lake St., Chicago, Ill.
M. RUMSEY & CO., Agents, 811 North Main Street,
Louis, Mo. MARCUS C. HAWLEY & CO., San Franco and Sacramento, Cal., General Agents for the
cific Coast. JUSTUS SCHMIDT, Agent, Hamburg.

Gilbert & Bennett Mfg. Co., GEORGETOWN, CONN.,

IRON WIRE, SIEVES AND WIRE CLOTH,

Power Loom Painted Screen Wire Cloth, GILBERT'S RIVAL ASH SIEVE,

Galvanized Twist Wire Netting, THE UNION METALLIC CLOTHES LINE WIRE, - 42 Cliff St., New York. Warehouse,



John Maxheimer,

apanned, Tinned Wire, First and Second Class Brass

Bird Cages. Wires on both cla



JOHN STARR, Hardware & Metal Broker.

> MANUFACTURERS' AGENT, Halifax, Nova Scotin,

Representing in the Dominion of Canada seve; al American Manufacturers, is ready to accept further Agencies. Satisfactory references.



All kinds Wagon & Carriage Axles LAMBERTVILLE INON WORKS,
LAMBERTVILLE, N. J. Send for prices.

BLACK VARNISHES.

kinds of

7

The Largest Pump Works in the World. W. & B. DOUGLAS,

PUMPS, HYDRAULIC RAMS.

GARDEN ENGINES. Yard Hydrants, Street Washers,

> WIND-MILL PUMPS AND OTHER

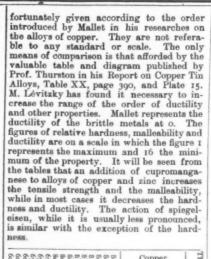
Hydraulic Machines, IN THE WORLD.

Awarded the GRAND MEDAL at WORLD'S EXPOSITION, Paris, France, 1878, being the highest award on Pumps, &c.; also the highest medals at Paris, 1867, Vienna, 1873, and Philadelphia, 1876, accompanied by the Report of Judges.

Descriptive Catalogues and Price Lists sent when requested.

BRANCH WAREHOUSES, 85 and 87 John St., N. Y.,

197 Lake St., CHICAGO, III.



00	8	8	07	707	707	0	00	000	200	9 0	0	000	900	000	Copper.	The
40	40	40	33	(3)	33	80	8	80	17	17	17	IX	EE	H	Zinc.	heoretica
1.50 mm	1.00*		C.05**	1.00		0.05	1.00	:	1.50**	1.00	:	1.50	1,00	:	Reducing sub- stance.	re.
														89.920	Copper.	Act
														10.08	Zinc.	Actual composition
0.019	0.082	*****	0.041	0.019		0.035	0.008		0.006	0.005		0,000	0.038		Manganese,	apositio
0.038	0.093		0.041	0.001	Tace	0.045	0.002		0.047		0.001	0.035	0.007		lron.	n.
8.265	8.272	8.265	8.316	8.327	8.310	8.410	S.AII	8.402	8.428	8.429	8.412	8.030	8.025	8.605	Specific gravit	y.
22.43															Tensile strengt Tons per sq. in	
18	16	N	10	OK	13	17	91	35	100	16	16	22	20	19	Hardness.	

Ductility.

Malleability.

B H 60 B H 6 H H 8 7 5 0 * Addition cupromanganese
** Addition spiegeleisen.

give only the results of casting into iron molds, without the subsequent cold working, and would add that, as he gives only one analysis in each class, those presented in the following tables are not always made of the identical metal, but, as in all cases the ma-terials were composed of a mixture of the same materials and underwent the same processes, the differences can only be nominally small. As before, tests were first made with the tin and copper alloyed without additions, and then with the reducing agents, thus affording means for direct comparison.

###888888888	2 Copper.	The
555555 mmmmoo	Tin.	Theoretical
to to to	Zinc.	
m m m	Lead.	duno
	Reducing agent.	composition.
93.703 91.883 91.928 91.928 91.928 93.703 93.703 93.703 93.703 93.703 93.703 93.703 93.703 93.703 93.703 93.703 93.703 94.703 95		
0.373 6.313 6.313 6.313 7.933 9.870 9.870 9.873 8.103 9.873 8.103 9.873 8.103 9.873	Tin.	0
9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Zinc.	hemical composition
0.019 0.019 0.019 0.019 1.846	Lead.	compe
0.017 0.007 0.009 0.038 trace	Manganese.	withon.
0.003 0.003 0.003 0.003 0.003	Iron.	
0.003 0.003 0.003	Phosphorus.	
8 8 8 8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9	Specific gravit	у.
99.47.62 99.48 99.48 99.84 11.43 19.84 11.43 19.43		
######################################	Elongation at po of rupture. — I	int

* Addition cupromanga ** Addition ferromaganese:
† Addition Lavrov phosphide of copper (5.56 per ent. phosphorus).

†† Addition Lavrov phosphide of copper (7.216 &c.

manganese both produce remarkable results in others. The density of the alloy is increased in all cases, and the chemical composition shows that the amounts of the elements added to effect deoxidation remaining in the latest the state of t

cent. of tin and various additions, but as none but rough mechanical tests are appended, we pass by them to give the following data concerning the use chiefly of cupromanganese. Here also hardness, ductility and malleability are given according to the Mallet scale,

M 4 4 4 4 4 M M : : : Copper. 3: m: m:: m: 3,46,000,000,000 84 27 28 28 28 88 Copper. 743 8 8 . 8 H B B B B H H Zinc. 8 3 9 9 908 908 901 322 103 177 150 112 103 121 Specific gravity. Tensile strength, Tons per sq. inch. Hardness Ductility. 000 + 000 0 + 000 222222222723 Malleability

These results are of value, as indicating hat large amounts of manganese render the lloys hard, brittle, and decrease their mallea-ility and tensile strength to an alarming legree. They prove, also, that any excessive ddition of ferromanganese to zinc and copper alloys acts in a very injurious manner, and forcibly illustrate the dangers which in excess of these reducing agents entails.

M. Lévitzky considers cupromanganese he most advantageous, as it does not contain the most advantageous, as it does not contain any volatile element, the presence of which in the phosphides renders them dangerous, and makes a precisely correct addition a somewhat delicate matter. The alloys of iron and manganese, such as spiegeleisen and ferromanganese, possess the drawback that any considerable amount of iron introduced into the purified product renders it liable to unsoundness. In general, it may be stated that the use of a reducing agent is indispensable whenever the object to be M. Lévitzky then gives in tabular form indispensable whenever the object to be the results of a series of experiments with gun and bell bronze, including in his tests into alloys of different degrees of fusibility the effects both of casting into the clay and cast-iron molds and of cold hammering. His figures clearly show the benefits to be derived by casting into iron molds and cold hammering. We shall, in the following, give only the results of casting into iron molds, without the subsequent cold working, and would add that as he gives only one and would add that as he gives only one allows. per alloys.

> Japanese Tariff Revision.—The Japanese proposals for treaty revision which have so frequently been revived and abandoned within the last few days as to throw doned within the last few days as to throw general doubt over the government's intentions, are now brought forward with fresh signs of activity. The administrative vigor shown in the foreign department since the accession of the new minister, Inouye Kaoru, inspires the hope of definite action at last. More Arinori, Envoy to England, carries the Japanese plan of rearrangement, for the inspection of European Cabinets, as before announced. There is no suggestion of a change in the present extra territorial of a change in the present extra territorial conditions. The exclusive right to the coast trade is positively demanded. An energetic minority in the ministry urged the immediate resumption of complete and entire control over the customs tariff. This was opposed by the majority, under the appre-hension that a forcible opposition by Great Britain and other commercial powers would compromise the scheme if it was adopted. The Japanese will agree to a further tariff The Japanese will agree to a further tariff treaty for a fixed term of years, after which all power over duties will revert to Japan. Meanwhile the tariff will be raised to an average equivalent of 15 per cent. ad valorem; the lowest import duty is 5 per cent., and the highest 30. The existing rate is 5 per cent. ad valorem. There is considerable irritation among resident Americans over the obvious discrimination favoring English imports. This discrimination is felt to be ungracious, in view of the friendship be ungracious, in view of the friendship often manifested toward Japan by the United

> Production of the Krupp Works.— The results just announced of the production of the Krupp Works for the past year show a considerable increase over the preceding one. The quantity of iron and steel turned out are stated to be as follows:

-	1878.—Tons.	1877Tons
	Wrought and Bar Iron 12,762	10,411
-	Bessemer Steel98,120	84.764
	Martin Steel	14:454
		9.484
	Cast Iron 7,193	6,798
	This quantity was used in the	
	ture of axles, wheels, tires, spr	
-	sheets, columns, tool steel, guns, p	projectiles.

From this table it is clearly evident how very beneficial is the effect of the addition of reducing agents, especially upon alloys high in copper, both upon tensile strength and ductility. Ferromanganese appears to be the weakest reducing agent in some cases, while phosphide of copper and cuprocases, while phosphide of copper and cuprocases, while phosphide of copper and cuprocases, we age to the weakest reducing agent in some cases, while phosphide of copper and cuprocases, while phosphide of copper and cuprocases both very copper and cuprocases and the company of the company and the company of the company and the company of in the alloy are comparatively small, by far the greater bulk of them being carried into the slag. This may, to a certain extent, be regarded as indicating that the quantities chosen are correct.

The prospertry make this ariting phosphorus, and will presently make this ariting the prospertry make this ariting phosphorus, and will presently make this ariting phosphorus ariting p M. Lévitsky gives also the results of some experiments with alloys of 18 and 20 per cent. silicon. were treated. The cent. of tin and various additions, but as none but rough mechanical tests are appended, we pass by them to give the follows the

Union Spiral Spring Hinges. Fine Castings a Specialty. NEW BRITAIN, CONN. Warehouses, mbers St., New York. by St., Boston (Pumps). & Denckia, 507 Com-St., Phila. (Butts.) 947 & 949 Pearl St.,

UNION MANUFACTURING COMPANY

LOOSE PIN REVERSIBLE,

Cast Fast & Loose,

and Real Brenze Butts. Also a full line o

Sistern, Well and Force Pumps, Yard Drive Well, larden Engine and Steam Boiler Pumps, Hydraulic Lams, etc., and all with the most modern improvements.

IRON & BRASS PUMPS.

Drilled and Wire Jointed, anned, Figured Enameled, Nickel Plated

Pat. Brads, Finishing Nails, Clout Nails, Trunk Nails, Hungarian Nails,

Cigar-Box Nails, Basket Nails, 2d and 3d Fine Nails. Carpet Tacks, Upholsterers Tacks, Gimp and Lace Tacks, Brush Tacks, Copper and Brass Tacks, BRASS AND IRON ESCUTCHEON PINS, &c., &c.,

DUNBAR, HOBART & WHIDDEN, So. Abington Station, Mass.

New York Salesroom, 39 Warren St. Goods made to order from sample

Particular attention given to orders for EXPORT.

HOC RINGER



HOG AND PIC RINGER and RINGS.

CHAMBERS, BERING & QUINLAN, Exclusive Manufacturers, Decatur, Ill.

ESTABLISHED 1858.

BLACK and BROWN BAKING JAPANS.



ASPHALTUM and Varnish Manufacturers, Detroit, Mich. CHICAGO BRANCH, 236 Lake st.; ST. LOUIS, 303 & 305 North Third st., CINCINNATI, 72 Main st.; ROCHESTER, 116 Front st.; BALTIMORE, 103 West Lembard st.; PHILADELPHIA, 57 North Front st.; HOSTON, 141 Milk st.; NEW YORK, 279 Broadway.

AUBURN FILE WORKS, Superior Hand-Cut

MADE FROM IMPORTED STEEL. EVERY FILE WARRANTED. FULLER BROS., Sole Agents,

89 Chambers and 71 Reade Streets, N. Y



McCAFFREY & BRO.,

PENNSYLVANIA FILE WORKS,

Philadelphia, Pa., U. S.



Manufacture and keep in stock a full line of FILES and RASPS only, for which we clair a lial advantages over the ordinary goods, and ask domestic and foreign buyers to allow us to comfor their trade. Superiority acknowledged wherever used, sold or exhibited.



FISKDALE, MASS., TENNIS & WILSON,

Sole Agents,

82 Reade St., New York,

MANUFACTURERS OF

Angular and Upright Boring Machines,
Boring Machine Augers,
Solid Cast-Steel Carpenters' Augers,
Extra Cast-Steel Auger Bits,
Jennings' Pattern Auger Bits,
Car Bits, 9 and 12-inch Twist,
Phoenix Superior Cast-Steel Auger
Bits,
Bits, Deriver Bits,
Coopers' Doweling Bits and Boat-Builders' Bits,
And all kinds of Machine Bits made to order. Bits, Screw-Driver Bits,

TENNIS & WILSON, Manufacturers and Jobbers of Hardware, Noiseless Self-Coiling Revolving

80 & 82 READE STREET, NEW YORK.

SOLE AGENTS FOR

H. Clark's. Nashun Lock Co. Taylor Mig. Co. Fisher & Norris. W. Hunt & Co. Wellington Mills. Bromwell Mig Co. Hill's.

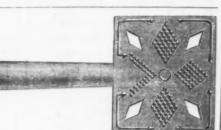
ometers, Patent Levels and Iron Planes. Holden's Files.
Woolson's Wood Mouse Traps.
Bemi-4 & Call's Patent Wienches, Calipers, Dividers.
Clark's Axes and Hatchets.
Lincoln's Molasses Gates.

DEPOT FOR

Atken's Saw Sets and Awis and Tools. Leach's Saw Sets. Stillman's Saw Sets. H. A. Lob'rop & Co., Trowels, Bread Knives and Mincing Knives, and Ames' Shoe Knives and Skivers.



Derby No. 2, Fifth Wheel. The most



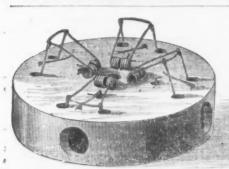
WILCOX & HOWE,

Birmingham, Conn.,

MANUFACTURERS OF

First-Class Carriage Forgings, Fifth Wheels, Steps, Body Loops, Stay Ends. Offsets, Long Joint Ends, &c., &c.

Our Illustrated Catalogue furnished to the trade.



"Common Sense"

For Home and Export Trade. BEST IN MARKET.

RIPLEY MFG. CO.

Unionville, Ct., U. S. A., Manufacturers of

Lemon Squeezers, Mallets, Roseword Faucets, Patent Boot Jacks, and Housefurnishing Ware.

SANDS' TRIPLE MOTION WHITE MOUNTAIN ICE CREAM FREEZERS.

THE WHITE MOUNTAIN FREEZER COMPANY are headquarters for Ice Cream Freezers and Ice unthers, being the only firm in the United States who manufacture all parts of the raw material. The famining Committee, consisting of 50,000 in the United States have recombiguous in the World for the following reasons: We have used them; they freeze quicker than any other; they save time, salt and ice; the triple motion makes amooth cream without bunches; makes amooth cream without bunches; makes

HAND OR POWER White Mountain Freezer Co., Laconia, N. H., U. S. A. SPECIAL ATTENTION GIVEN TO EXPORT ORDERS.

FILES &

RASPS

HAND-CUT. Manufactured by JOHNSON & BRO. No. 1 Commercial Street. Newark. N. J.

SPENCER & UNDERHILL

94 Chambers St., N. Y., Agents for American Screw Co.'s Wood, Machine and Rail Screws, Stove and Tire Bolts, Rivets, &c. O. Ames & Sons, Shovels, Spades and Scoops. A. Field & Son, Tacks, Brads, Nails, &c. G. F. Warner & Co., Carriage Clamps. We have also on hand a general assortment of Hardware



THE CIANT PAD LOCK.

THE SMITH & EGGE MFG. CO. (Centennial Award.)

"Superior in Every Respect." his is one of the best selling Locks in the market, affords the dealer a large profit. It is thoroughly strongly made—of the best material—very hande-in appearance, and every Lock is warranted, rders solicited. Address as above Lock Box 105, Bridgeport, Conn.

PRIZE MEDALLISTS:

Exhibitions of 1862, 1865, 1867, 1872, 1873, and only award and medal for Noiseless Steel Shutters a Philadelphia, 1876, and Paris, 1878.

CLARK & CO.

Original Inventors and Sole Patentees or

STEEL SHUTTERS,

FIRE AND BURGLAR PROOF ALSO IMPROVED

Rolling Wood Shutters

Of various kinds. Endorsed by the Leading Architects of the World. Send for Catalogue. Office and Manufactory,

162 & 164 West 27th St., N. Y.



QUEEN CITY CABINET CO., Cincinnati, Ohio.



HOWSONS'

UNITED STATES AND FOREIGN PATENTS,

Forrest Buildings, 9 SOUTH FOURTH ST., PHILADELPHIA AND MARBLE BUILDING Seventh 8t. (Opposite U. S. Patent Office), Washington, D. U.

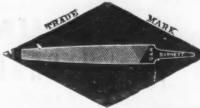
. HOWSON Solictor of Patents. | C. HOWSON Attorney at Law nmunications should be addressed to the PRINCIPAL OFFICES, PHILADELPHIA.

PATENTS.

BARBER'S COUNTERSINK

Black Diamond File Works.







Awarded by Jurors of Centennial Exposition, 1876, for "VERY SUPERIOR GOODS."

H. BARNETT 39, 41 & 43 Richmond St., Philadelphia.

CHARLES B. PAUL.

Manufacturer of HAND CUT FILES

THE STANLEY WORKS,

Wrought Iron Butts, Hinges DOOR BOLTS,

Plain, Japanned, Bronzed and Plated.

FACTORIES:

WAREHOUSE:

New Britain, Connecticut.

Locks, &c.
Sandusky Tool Co.,
Planes and Plansi cons
Geo. M. Eddy & Co.
Measuring Tapes.

79 Chambers St., New York.

HAINES,

113 Chambers and 95 Reade Streets, New York.

HARDWARE

HIGH Co., Some Hard Co., Some Hard Fluters

Hard and Fluters

Horse Nails.

Horne Nails.

H. Coes & Co., Common Horse Nail Co.

Horne Nails.

H. Coes & Co., Common Hardware

Hard and Fluters

Geneva Hand Fluters

Hand and Sleigh Bells.

H. S. Osborne & Co., Common Hardware

Hand and Sleigh Bells.

Coes' Genulne Screw Wrenches.

F. K. Silby, Emery Cloth, Holroyd & Co., Stocks & Dies.

Bedy to Co., Wies, lattocks, Grub Hoes, &c.

Exploy Mfg. Co., Mouse Traps, Carriage Bolts, &c.

Hard and Sleigh Bells.

Coes' Genulne Screw Wrenches.

F. K. Silby, Emery Cloth, Holroyd & Co., Socks & Dies.

Bedy to Co., Wies, lattocks, Grub Hoes, &c.

Exploy Mfg. Co., Mouse Traps, San't Loring, Plymouth Tack & Rivet Works.

Carriage Bolts, &c.

Carriage Bolts, Curry Combs.

Howard Bros. & Co.,
Cotton, Wool and Curry Cards
Thompson, Derby & Co.,
Seythe Snaths.
Otsego Fork Mills.
Steel Forks, Rakes, Hoes, &c.
H. Knickerbacker,
Seythes, Axes and Tools.
H. W. Kipp, Nail Hammers.
Kloman, Park & Co., Vines,
Ficks, Mattocks, Grub Hoes, &c.
Jacobus & Nimbels Mfg. Uo.,
Locks, &c.

ADAMS & WESTLAKE LINED WOOD STOVE BOARD

No. 1916 to 1924 North 4th St., Philadelphia.

THE ADAMS AND WESTLAKE

Wood-Lined and Plain Zinc

NEAT AND SUBSTANTIAL.

Will not warp or lose their shape. Easily kept clean.

For sale by Hardware and Stove Dealers.

ADAMS & WESTLAKE MFG. CO., CHICAGO. Sole Manufacturers of Mann's Tin-Rim Sieves.

THE AMERICAN MACHINE CO.,

Bickford Portable Pump, Mrs. Potts' Patent Cold-Handle "Crown" Irons, &c., &c. COXE BROS. & CO.,

Cross Creek Lehigh Coal. The Purity and Strength of this Coal especially adapt it for the working of Iron and Metals.

GENERAL OFFICE, 12 & 14 Trinity Building, 111 Broadway, New York. BRANCH OFFICE, 206 Walnut Place, Philadelphia

E. B. & S. W. ELY, Agents, P. O. Box 262, N. Y.

NORWAY IRON FANCY HEAD BOLTS.

Star Axle Clips, &c. Carriage & Tire Bolts. TOWNSEND, WILSON & HUBBARD, 2301 Cherry St. Philadelphia, Pa

Wire Nails, Moulding Nails, Escutcheon Pins, &c. New York Salesroom, 116 Chambers Street.

AMERICAN TACK CO., Fairhaven, Mass.

. i see.

Sole manuf United State CLOT

PHO.

Bearing

Slides,

Pamphlete

2038 W

The Phospi

T. J. AL

A. FIELD & SONS.

TAUNTON, MASS.,

MANUFACTURERS OF

AMERICAN AND FRENCH

WIRE NAILS

TACKS, SHOE NAILS, And Every Variety of Small Nails.

Offices & Factories at Taunton, Mass.

Warehouse at 78 Chambers St., New York,

where may be found a full assortment of Tacks, Brads, Wire Nails, &c., for the accommodation of the New York Wholesale and Jobbing Trade. Any variations from the regular size or shape of the above-named goods made from sample to order.

A SILVER MEDAL has been awarded above goods at the Paris Exposition, being the only medal awarded any American manufacturer of Tacks and Wire Nails.

NE BROTHERS MFG. CO., Chicago.

STAR LOCK WORKS.

Pad Locks,
Dead Latches,

Trunk Stays,
Keys, &c., &c. 110 South 8th St., and Sonsom, bet. 8th

Door Springs, and 9th, PHILADELPHIA.



HILLEBRAND & WOLF.

AKE

S

O.,

al.

. Y.

(S.

S,

ass.



Bearings, Hydraulic Cylinders, Pump Rods, Cog Wheels, Slides, Valves, Bolts, &c.



Pamphiets and particulars on application to The Phosphor-Bronze Smelting Co., Limited, 2038 Washington Ave., Philadelphia. Sole manufacturers of Phosphor-Bronze in the United States.

CLOTHES WRINGERS.



T. J. ALEXANDER, Manager, MOSTON, MASS.

THE ANSONIA CORRUGATED STOVE PLATFORM.

With Patented O. G. Border.

ROUND ZINC.

27, 30, 32, 31, 36 Inch.

Manufactured of heavy metal, requiring no nailing or lining, the edge retaining its form. Superior pattern, finish and quality, Price as low as any.

Send for List and Discount. Packed 12 in each case.

THE ANSONIA STOVE REST.



This Cut is the Actual Size of 2-inch.

STOVE RESTS are designed to place under the feet of Stoves and Ranges, for the purpose of raising them from the floor or platform. They are about %-inch thick, covered with sheet metal in sinc, brass and nickel Highly polished and finshed. Packed one set of 4 pieces in each paper box, and 36 sets in each case. Sizes (inside of circle

2, 21, 21, 31 inch. Send for full Description and Prices.

ANSONIA BRASS AND COPPER CO., 19 Cliff St., New York.

NEW YORK BELTING AND PACKING COMPANY,

Vulcanized Rubber Fabrics

In Every Form, Adapted to Mechanical Purposes.

for JGI. ther

Hose the CABLE ANTISEPTIC COTTON HOSE. Patented July 8, 1873. This is a rubber-lined, extra beavy Coton Hose, woven seamless in a peculiar manner, to insure compactness and durability. The 3-ply weight to be to the section, and has been tested to ac bis. It is the lightest and most durable seamless Cotton (see in the market. For use on Hand or Steam Fire Engines.

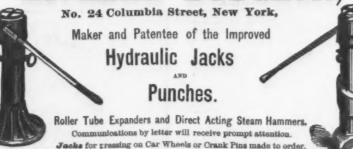
ANTISEPTIC LINEN AND RUBBER-LINED LINEN HOSE. A cheap and durable article for mining, till and factory purposes. Will stand a pressure of 500 Ms. per square inch.

CAUTION.—Our name is stamped in full on all our best Standard Belting, Pack-g and Hose. Buy that only. The best is the cheapest.

WAREHOUSE, 37 and 38 Park Row, New York. JOHN H. CHEEVER, Treasurer.

RICHARD DUDGEON,

Price lists and further information may be obtained by mail or otherwise on application



PUTNAM NAIL

It is the only Hot Forged and Hammer Pointed Horse Shoe Nail, made by ma-

chinery, in the World.

Some other manufacturers claim to make a hot forged Nail, but you will observe on all such a sheared edge near the point.

THE PUTNAM NAIL CO., Boston. P. O. Address, Neponset, Mass., U. S. A.

INDUSTRIAL ITEMS.

MASSACHUSETTS.

The manufacture of stoves and ranges has increased to a remarkable extent in Taunton within a few years. The city now contains eight stove and range foundries, and it is estimated that over 15,000 stoves have been made the past year and sold throughout the

It is proposed to form a stock company at Brockton, with a capital of \$25,000, for the manufacture of clothes wringers.

The Albany and Rensselaer Iron and Steel Company are about to increase the extent of used in the fabrication of farming implements. It is estimated that 20,000 tons of this material are used annually for the above purpose. The manufacture of this kind of steel was determined upon several months ago, and the construction and placing of machinery have already been begun. It was expected that arrangements would be completed by January 1st, when 60 hands were to be employed in addition to the present force of 2200 men.

NEW JERSEY.

NEW JERSEY.

A promising field of enterprise is opened in various parts of South America in providing small portable bouses for railroad laborers, or others engaged on public works who have no certain dwelling place. Mr. A. G. Plume, of Newark, N. J., has received a letter from an engineer on a railroad in Brazil, stating that he desires to contract for a large number of houses of that description. They must be built in such a manner that they can be taken down or put up at short notice. It will be remembered that Col. Darrow, of Paterson, not long ago had a large contract in Venezuela

bered that Col. Darrow, of Paterson, not long ago had a large contract in Venezuela for portable houses.

At Phillipsburg, the largest iron manufacturing town in Western New Jersey, fully 1000 men find employment in the mills alone. The Warren Foundry, which six months ago was running on short time with not too men at work is now employing over not 100 men at work, is now employing over 400 men, besides having introduced new machinery, which does away with the employment of many hands. The Andover Furnace, at Phillipsburg, furnishes employment to about 200 men. There are three stacks working, and a new one ready to be fired. This furnace has raised the wages of all its men

DELAWARE.

The Jackson & Sharp Co., of Wilmington, are running about 700 men in their various departments, chiefly in car building. They have had several South American orders this year, and recently one from Brazil.

Bowers, Dure & Co., Wilmington, have

Bowers, Dure & Co., Wilmington, have had an active trade during 1879, and expect to increase their working force by taking on upward of 100 additional hands toward spring. They have just completed an order for freight and passenger cars for the Columbus and Saud Creek Railway, another for the Shenandoah Valley, and one for the New Jersey Central.

PENNSYLVANIA.

Stokes & Parrish, of Philadelphia, report an active demand for their special machinery, including furnace hoists, belt hoists and hydraulic elevators. During the past few months they have completed a hydraulic passenger elevator for the American Hotel, and several hydraulic freight hoists for lead-ing firms in the city. They have also built a number of double-drum wharf hoists for the United States government, Atlantic Refining Co., and others. They are now building one hydraulic hoist for Detroit, two for Cincin-

hydraulic hoist for Detroit, two for Cincin-nati and one for Baltimore. Schleicher, Schumm & Co., of Philadelphia, have sold 70 odd "Otto" silent gas en-gines within the past six months, and have now more orders on their books than ever. They are increasing their facilities for manufacturing, and expect to be able to meet the

demand promptly.

Lovegrove & Co. shipped a number of their

Lovegrove & Co. shipped a number of their small power engines during the year to the following countries: Russia, Greece, Italy, Spain, Japan, East Indies and Australia. The Reading Iron Works are now employ-ing 3000 men in their various departments, and are pushed to keep pace with orders. Notwithstanding the recent extensive addi-tions to their premises, they find their facili-ties inadequate to their requirements.

county. The officers are as follows: President, Comly B. Shoemaker; Secretary and Treasurer, Joseph L. Bailey; General Manager, Benjamin F. Morret. The capital stock is \$16,000, divided into 320 shares of \$50 each, all paid up. Work has commenced this week at the Delaware Rolling Mill in Easton.

The blast furnace in Erie, owned by Rawle,

The blast furnace in Erie, owned by Rawle, Noble & Co., was built in 1869, and was run until 1875, when it was put out of blast. The revival in the fall of 1879 determined its owners to put it in operation again. It has been enlarged and provided with a closed top. It will be run on Connellsville coke and black coal from Shenango Valley, Lake Superior and Cornwall ore.

The work of repairing the Swedes Furnace, Montgomery County, is being rapidly pushed, a force of 60 men being employed. It is the intention to rebuild both stacks and to get into operation as soon as possible.

to get into operation as soon as possible.

No. I Westerman Furnace, Sharon, was in blast at the beginning of the year, and No. 2 was to blow immediately.

One of the Mount Hickory Furnaces, Sharpesville, blew in on the 4th, the other is part of blast.

out of blast.

Messrs. Broomall, Miles & Co., Westchester, manufacturers of portable and stationary engines and mill and factory gearing,

at Reading, were barned last week. Loss, \$45,000; insurance on the buildings, \$25, Their facilities for turning out large quantities of goods promptly are somewhat impaired, but financially they are not dam-aged a particle. Their principal machine shop, foundry, engines and boiler are in good condition. Their main loss will be a delay in filling orders. This, however, will be only for a short time

The large freight locomotive that was shipped to Paris over a year ago, is back again in the P. & R. shops, Reading, where the different parts are being put together again. It will be placed on the main road of the company.

The sales of the Gautier Steel Company, United Advantagement

their operations at Troy, by beginning the manufacture of agricultural steel, which is show an increase of \$700,000 over the cor-

responding period of the preceding year.
The Richmond Furnace, at Richmond,
Franklin County, and also the excellent hematite ore mines, have been leased by Robert T. Ryon & Co. The furnace is expected to be in blast about January 10th. It has a capacity of about 80 tons per week, and will be run principally on Gray Forge Iron. J. O. Richardson, of Philadelphia, has been appointed sales agent for the iron

Mr. Thos. H. Lyman, Son of Mr. C. A. Lyman, of Philadelphia, has been admitted to an interest in his father's Iron Commission and Brokerage Business, which will here-after be conducted under the firm name of Lyman & Co.

PITTSBURGH AND VICINITY.

The Beaver Falls Iron Works, the only iron rolling mill in this thriving little town. will be in full blast this week with plenty of orders and a fine prospect. This is a new concern, and the iron made will be mainly billets, blooms and bars for converting and melting.

Shoenberger & Co. have leased the idle puddling furnaces of Hussey, Howe & Co., in order to make muck iron with which to

keep their nail factory running steadily. Carnegie Bros. & Co. are building six new puddling furnaces and two Siemens-Martin furnaces, at their works. Four new pud-dling furnaces are being built at Brown's

Owing to the press of orders the Pittsburgh mills will not stop as long as usual for ourgn mins will not stop as long as usual for the customary repairs.
Over 5,000,000 bushels of coal went down the Ohio on the Christmas rise.
The West Point Boiler Works of R. Mon-

roe were partially destroyed by fire on the evening of the 2d. The loss was some \$6000. The most valuable part of the works, consisting of the extensive machine shops, containing machinery worth about \$20,000, was fortunately saved, and the works resumed operations the next morning as if no fire had occurred. The saving of the working machinery, which is not at all damaged, is a lucky circumstance for the proprietor, as he has large orders to fill and will be able to proceed without interruption.

Mr. Monroe has purchased the Smith Pipe
Works, at Twenty-third and Smallman
streets, and intends to remove his works out

there in a short time.

The hoisting house and the ironwork of the blast furnace at Kittanning are nearly

completed. Sunday afternoon, the 28th ult., at I o'clock all the trusses of the converting mill o'clock all the trusses of the converting mill of the Edgar Thompson Steel Works gave way, and the roof fell to the ground. As is customary, the works stop for two or three weeks during the holidays for repairs, and it was proposed during the present idleness of the mills to have a new set of trusses placed in the converting department, as those in present use were not strong enough to hear up, the iron roof and support four. those in present use were not strong enough to bear up the iron roof and support four cranes and other machinery. The Keystone Bridge Company had the contract of replacing the old roof with new trusses of about four times the weight and strength of the former ones. They had been working for the past week, and had one of the trusses swing from the walls, and were preparities. swung from the walls, and were preparing to take down the old one when the entire roof, goxgo feet, came down. Two cranes were damaged to the extent of some \$500 to \$1000, but no delay in the resumption of work in the converting department will oc-cur. Five men were injured, but none seriously. Strict orders had been given that no one should remain there while the

men were at work above. The report that Smith, Sutton & Co. had tions to their premises, they find their facilities inadequate to their requirements.

A furnace company has been organized under the name of the Rockland Furnace Company, for the purpose of engaging in the manufacture of iron at the Rockland Furnace, in Rockland township, Berks county. The officers are as follows: President Comby R. Shoemsker: Secretary and dent Comby R. Shoemsker: Secretary and controlled to their large sheet mill is broken, and when the new one is ready two trains will be stopped for a few days. The work will probably be done the present week.

Brown & Co. had stopped for two weeks to put in a bed-plate to their large sheet mill is broken, and when the new one is ready two trains will be stopped for a few days. The work will probably be done the present week.

The Cumberland Coal and Iron Company, whose furnace is at Frostburg, have determined to put their works into operation without delay. They have been idle for several years. Mr. E. L. Brown has been elected president, and Mr. J. Richards continues as secretary of the company.—Bulletinues as secretary of the company.—Bulletinues. tinues as secretary of the company.—Bulle-tin of Iron and Steel Association.

There are 46 rolling mills in the State, 32 of which are in operation.

The rolling mill at Newark has been abandoned and the machinery removed. Part of it will be erected in Pittsburgh.

At the Lawrence Mill, Ironton, large amounts of chain iron are being manufac-

The Washington Furnace continues successfully on raw bituminous coal, making a very fair grade of iron. They are paying 85 cents per ton for mining coal.

The Monroe Furnace will make a 4000-ton

blast next year.
The capacity of the iron furnaces in blast in this State on the 1st of October last was, according to the labor statistics report, 1937 ter, manufacturers of portable and stationary engines and mill and factory gearing, are building a new foundry 35x 50. They also manufacture the Westchester pruning shears.

Blast furnace No. 3, Birdsboro', of Messrs.
E. & G. Brooke, has started. The furnace will be run upon foundry iron, for which grade there is a great demand.

The warehouse, machine shop and part of the foundry hardware werks of Rick Bros.

Cutlery.

EDMANN & LAUTERJ



PEN AND POCKET CUTLERY, Solid Steel Scissors, Shears, Razors, &c. &

"ELECTRIC RAZORS,"

And the "ELECTRIC SHEARS." Nickel Plated Bows. Agents for the BENGAL RAZORS.

AMERICAN TABLE CUTLERY, BUTCHER KNIVES, &c.
91 Chambers and 73 Reade Sts., N. Y.
423 N. Fifth St., ST. LOUIS, Mo.

MERIDEN CUTLERY COMPANY.

THE "PATENT IVORY" HANDLE TABLE KNIFE.

The oldest manufacturers of Table Cutlery in America. Exclusive makers of the CELLULOID HANDLE for Table Cutlery. A most beautiful and perfect substitute for Ivory. Also makers of all kinds of TABLE, BUTCHER AND HUNTING KNIVES. Illustrated catalogues with prices sent to trade on application.

No. 49 Chambers Street, New York.





The only survivor of the four Rogers; recognized by the Supreme Court of this State in the test al vs. C. Parker.

Send for list of other patterns.

WM. ROCERS, Wallingford, Conn. With SIMPSON, HALL, MILLER & CO.



Manufacturer of Pen and Pocket Cutlery, Pepperell, Mass. My Blades are forged by hand from the best Cast Steel, and warranted. To me was awarded the Gold

HENRY SEYMOUR CUTLERY CO. SHEARS AND SCISSORS.



STANLEY RULE AND LEVEL CO. MANUFACTURERS OF FACTORIES,

Improved Carpenters' Tools.



New York.

New Britain, Conn.

WAREROOMS,

29 Chambers St.

No. 113, Improved Adjustable Circular Plane

THE "ECLIPSE"

Hand Fan Blowers.

Every machine guaranteed or no sale. Is now improved by lever attachment. Works precisely like bellows lever, or, if preferred, crank can be used.

The trade are invited to write for terms, descriptive circulars, &c.

EXHAUST FANS

for ventilating mines. Address,

EZRA F. LANDIS.

Sole Manufacturer, LANCASTER, PA.

W. R. OSTRANDER, PATENTED

Speaking Tube Whistles

Bell Hangers' Hardware.



PAT. "SCREW WINDOW BALANCES." Liberal Discount to the Trade.

ROB'T B. HUGUNIN, Manufacturer of Screw Bala Wethersfield, Ct.



PATENT PORTABLE VALVE SEAT ROTARY PLANING MACHINE.

L. B. Flanders Machine Works, 1025 Hamilton St., Philadelphia Descriptive Circular on application

Cutlery.

ALFRED H. HILDICK, 12 Warren St., N. Y., aporter of CHAINS, ANVILS, VISES, &c.

Agency of HILL BROTHERS & CO., WALSALL, ENGLAND GENERAL HARDWARE MERCHANTS,

BALL'S PAT. SOLID STEEL SHEEP SHEARS. These shears are unsurpassed for cheapness, dura bility and utility. They are made of one solid piece of steel from point to point, and cannot be broken it use either in the bow or at the junction of the shant and blade. Samples can be seen at above address, or sample lots furnished.



Joseph Rodgers & Sons

CELEBRATED CUTLERY, No. 82 Chambers Street, New York.

F. & W. CLATWORTHY, Agents. The demand for Joseph Rodgers & Sons productions having considerably increased, they have, in order to meet it, greatly extended their Manufacturing Premises and Steam power.
To distinguish Articles of Joseph Rodgers

& Some Manufacture, please to see that they bear their Corporate Mark.

P. O. Box 3962. ESTABLISHED 1836.

Alfred Field & Co., COMMISSION MERCHANTS,

New York, Birmingham, Sheffield, Liverpool.

Guns and Pocket Cutlery, SPECIALTIES.

Headquarters for ELEYS BROS.' GOODS, WRIGHT'S ANVILS, WILSON'S BUTCHER KNIVES, &c. WOSTENHOLM'S POCKET CUTLERY AND RAZORS BUTCHER'S FILES, TOOLS AND RAZORS STUBS FILES, WESTERN FILES, GREAVES' SHEEP SHEARS, CHESTERMAN'S TAPES, GERMAN COIL AND HALTERS and other CHAINS.

BRADES' TROWELS AND HOES,
CANASTOTA KNIFE CO.'S POCKET KNIVES.
Etc., Etc., Etc., Etc., All sorts of Hardware and Merchandise for im

port and export purchased on co ROBERT SORBY & SONS SHEFFIELD,

MANUPACTURERS OF THE CELEBRATED Kangaroo Sheep Shears



ALFRED FIELD & CO., NEW YORK 3 Chambers St., SOLE AGENTS.

Vermillion

Eight thousand sold the first year,

STUMP PULLER

M. E. Bunger & Co

TUCKER & DORSEY, Mfrs.,

Indianapolis, Ind.

Indianapolis, Ind.

Tucker's Incomparable

ADJUSTABLE STOVE TRUCK.

nd for Illustrated Catalogue

Cutlery.

McCOY & CO.,

IMPORTERS OF

Hardware, Cutlery, &c.

THEILE & QUACK'S

CELEBRATED

Pocket Knives and Scissors.

A large stock of

Muzzle & Breech Loading

English Guns. 132 DUANE ST., NEW YORK.

Silver Medal, 1878—Paris.



J. R. SPENCER & SON Albion Steel Works, Sheffield,

MANUFACTURERS OF FILES STEEL

Table Knives, Razors, Shovels, &c., &c., of every description.



Granted 1749.

SCHRODER LOCK CO.,

BUILDERS' HARDWARE



One Dozer

Mounted on Mar-tin's Patent Caster.

Inabox

SUSCEPTIBLE

32 CHANCES

Locks, Latches, **BRONZE & BRASS GOODS**

JAIL LOCKS. Office and Works, 16 & 18 East 7th Street. CINCINNATI, OHIO. A liberal discount to the



P. (

Ele

Faci

Imp

PRIEST

PRIEST

Fou

The backstrain when the wrench is used is b by the bar-not by the handle. The strongest Wrench made, and the only suc essful Re-enforced Bar. None genuine unless stamped

A. G. COES & CO.,

Our Agents, GRAHAM & HAINES, 113 Chambers St., New York, carry a full line of our goods, and will be pleased to serve you at factory prices.

GLASS BALL CASTERS For Furniture, Pianos, &c.



The Best and Most Ornamental Caster in the Market.

Do not cut, soil or rust carpets or matting. Center bearing, they do not split furniture. Warranted not to break. They improve the tone of planos 35 per cent., and are recommended by physicians as a preventive of rheumatism, sleep-lessness, &c. By insulating bedsteads they prevent loss of electricity from the body, and protect from lightning.

For sale by the Hardware trade generally. For circulars and price lists address,

The Glass Ball Caster Co., 96 JOHN STREET, NEW YORK.

CLARK'S RUBBER WHEELS.



This wheel is the market, and is attracting the atten-tion of large manufacturers on ac-count of the great greater than the extra cost of this wheel.

adapted to all purposes, viz., Warehouse trucks, atform trucks, scales, boxes, baskets and heavy sters. For full particulars see the first issue of The m Age next month, or address GEO. P. CLARK, Windsor Locks, Conn.

COBB & DREW, Plymouth, Mass.

urers of Copper, Brass, and Iron Rivets: Com swedes Iron, Leathered, Carpet, Lace and Gindb Inishing, Hungarian, Trunk Clout and Curar, &c. Rivets made to Order. NEW YORK AGENCY

George C. Grundy. HARDWARE, 165 Greenwich Street, Agents for the Philadelphia Star Carriage and Tire Bolts.

JAMES COMLY, 4739 Paul St., Frankford, Philadelphia Pa.,



CHARLES E. LITTLE, 59 Fulton St., New York,

Agency for Barnes' Foot-Power Machinery. de Scroll Saws, No. 1, \$12.00; No. 3, \$15.00 one), \$15.00; for fine fret work. Veroci I Saw, with seat, No. 2, \$25.00; and "Large"

Frederick's 3-Horse Equalizer is a perfect Double Tree, a perfect Tripple Tree, a perfect 2-Horse to a perfect 3-Horse Stretcher, a perfect attachment for either 2 or 3 horses anywers. Just the thi

M. E. BUNGER & CO., Indianapolis, Ind., Manufacturers.

* WM. ROCERS & SON, AA.

Superior Electro Silver-Plated Table Ware.



WM. ROCERS,
Senior Member and Manager of ROCERS BROTHERS.





12 dwts. of Silver per Dozen. All goods are put up one Dozen IN A BOX.
All our Knives are put up in the latest
and most attractive style, with guarantee
card in every box. The best base known for plating upon.

WM. ROGERS & SON, A. A.

Our Spoons, Forks, etc., are guaranteed to Strip
On Tea Spoons, 48 dwts. per gross.
Our Knives are guaranteed to Strip
On Table Spoons and Medium Forks, 96 dwts. per gross. WM. ROGERS & SON, A. A. HANTFORD CORN. 24 ALL OTHER GOODS IN PROPORTION. All our Spoons, Forks, etc., are plated upon 18 PER CENT. NICKEL SILVER,

50 Per Cent. More Silver than any other brand of goods in the market.

OUR GOODS ARE PLATED 20 PER CENT. ABOVE STANDARD PLATE. WM. ROGERS & SON, Hartford, Conn.

HALL, ELTON & CO.,

Electro Plated Ware, German Silver and Britannia Spoons.

On Spoons



THE "EASTLAKE." (Patented.)

Factories, Wallingford, Conn.

L Vy

8.98

om

гу

Salesroom, 75 Chambers Street, New York.



FORKS, SPOONS, Etc., WALLACE BROTHERS, Wallingford, Conn.

THE HOWE SCALE CO., Improved Scales & Weighing Machines of every Variety.

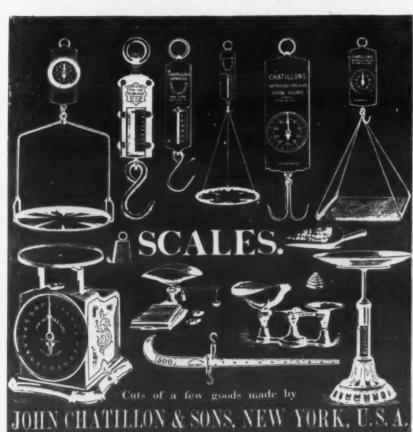
BORDEN, SELLECK & CO., 97 Lake Street, Chicago. PRIEST, PAGE & CO., 325 Broadway, New York.
PRIEST, PAGE & CO., 145 Franklin Street, Boston.

BORDEN, SELLECK & CO., 97 Lake Street, Ch.
J. FRED. DENNIS, 16 Holborn Viaduct, London.

Works at Rutland, Vt.



Four Pointed Steel Barbed Cable Fence Wire, tions at the works in already commenced. Manufactured by H. B. SCUTT & CO., Buffalo, N. Y.



WESTON DYNAMO-ELECTRIC MACHINE NICKEL

and the very low price of nicked material, enables us to give greatly reduced estimates for complete

outfits.

We are furnishing outfits specially adapted for Stove Work, giving a pure white deposit on plain or mat surfaces.

or mat surfaces.

Outfits complete, with Dynamo-Electric Machine Tanks, Anodes, Solution, &c., &c., \$250.

We beg to refer to the following Stove Manufacturers among 500 other houses using the Weston Machine: Richardson & Boynton, 8. B. Jewett & Co., Fuller, Warren & Co., Ferry & Co., Detroit Stove Works, Michigan Stove Co., Co-operative Stove Co., & & C. Gurney, Hamilton & Toronto, and many others.

INFRINGEMENTS.

nd many others.

INFRINGEMENTS.

We call attention to infringements of the Weston tachine, in which Automatic Swi ches are used to recent change of current. The Weston Co. are owners years or purchase of all forms of Automatic witches for Hating Machines. The adoption of these accordances will certainly load to groat loss to parties urchasing or using them.

CONDIT. HANSON & VAN WINKLE NEWARK, N.J. U.S.A. ENGLISH AGENCY: 18 Caroline Street, Birmingham.



Manufacturers of Patent Scandinavian or Jail Locks. Brass Pad Locks for Railroads and Switches. Also Patent Stationary R. R. Car Door Locks. Pat-ent Piano and Sewing Machine Locks. Pat-tat to 143 Kailroad Avenue, Nawakr., N. J. Rhustrated Catalogue sent to the trade on appli-

gray limestone ore, making an average of 14 tons per day (on charges of 950 lbs. of coke, 1300 lbs. of ore and 700 lbs. of limestone), mostly mill iron, though some excellent hedge of foundary land to the control of lent beds of foundry iron have been cast. As no changes, excepting a flue to lead off superfluous gas, were made at the furnace, her success is encouraging. She will continue on coke, if she can obtain enough to run her, until her charcoal comes in next

spring.
The Dover Fire Brick Company, Canal Dover, have added to their works a new stack and kiln, and are putting in a Stevenson clay mill and Martin brick machine, which will raise their capacity to 18,000 bricks per day. Their trade has never been so large as the past season.

INDIANA.

The merchant mills and steam forge works around the Falls of the Ohio, at New Albany, are run double turn. The rail mill is temporarily idle, making extensive repairs, and will probably make large additions in bany, are run double turn. The rail mill is temporarily idle, making extensive repairs, and will probably make large additions in the coming spring. The rail mill proprietors are offered many more orders than they are willing to execute the control of the contr tors are onered many more orders than they are willing to accept, and it is not deemed prudent to make long time contracts on account of the advancing tendency of raw material. The Evansville Rolling Mill, one of the largest in Indiana, is being remodeled, and will be converted into a steel real mill rail mill.

The nail works at Terre Haute, Greenhand to-day, and the spike mills of the Ohio Falls Iron Works are taxed to their full capacity. The New Albany rail mill will soon be in blast again, and will, it is said, be run on double turn. This mill has a capacity of 450 workmen, being the largest rail mill in the State.

A new company has recently been formed and has leased the old Louisville Rolling Mill at Louisville. They have commenced to put the mill in complete order, expecting to start up on the 15th January inst. The mill, though having been standing idle for mill, though having been standing idle for some time, needs very little repairs, as the machinery is first class and has been kept in complete order for immediate operations when required. Authorized capital of \$150,000 with \$60,000 subscribed. The officers are: C. P. Moorman, president; J. Morgan Coleman, vice-president; L. G. Quigley, secretary and treasurer. The mill will run principally on merchant iron and will run principally on merchant iron and The Bellefonte Furnace will not run this

year, owing to trouble with its wood chop-

The Iron Hills Furnace was forced to blow out on the 29th ult., owing to the fall-ing of its hot-blast smoke-stack.

TENNESSEE.

The Cumberland Iron Works Company, an organization for the purchase of the old Cumberland Iron Works property of Wood, Tale More to the Cumberland River, is now organized, with Mr. J. P. Drouillard as president and treasurer, and Mr. Albert W. Harris as secretary. The incorporators, as heretofore announced, are Messrs. V. L. Kirkman, W. W. Berry, Samuel Prichitt, Jeseph Vaulx, J. P. Drouillard, A. W. Harris and Thomas H. Malone. lard, A. W. Harris and Thomas H. Malone. The company will proceed at once to manufacture iron. The ores of this valuable property, of which the supply is seemingly inexhaustible, are among the best that are mined in this country, and the iron hitherto manufactured from it has a reputation which insures a ready market anywhere. The company will establish an office in Nashville to miners if the form of the furnishing of the control of the form of the furnishing of the company will establish an office in Nashville to change a set duty to do. The mitted mitted to change a set duty to do. The mitted mitted mitted mitted to change a set duty to do. The mitted mitte immediately, and, in the meantime, opera-tions at the works in Stewart County have

WISCONSIN.

The North Chicago Rolling Mill Co.'s mill at Milwaukee is filling an order for Besse-mer steel plow beams for a Pittsburgh house. This company, which also operates the rolling mills and blast furnaces at and near Bay View, and the iron mine and blast furnaces at Iron Ridge, is erecting no less than 100 kilns for producing charcoal in the hard-wood lands along the line of the Milwaukee, Lake Shore and Western Railway, north of Oshkosh.

anamed taked of a strike 4 months of finally decided to awaft events. workmen named did suspend open a few days, but finally went back.

A delegate convention of riv will be held in Pittsburgh this w

The sheet iron rolling mill now being com pleted for the St. Louis Stamping Company will be one of the largest mills in the West. When it was first considered, it was the intention of the company to erect a small mill such as would supply simply their own requirements, but further consideration in dured them to build a mill whose capacity will be very large. The mill will be put in operation about the 1st of February. The sheet iron required by the company for such ware as they manufacture must be of the best quality of iron, possessing toughness and elasticity.

MICHIGAN.

The mine at Quinnesec is lighted with an lectric light.

There is a prospect that the Deer Lake Furnace will be put in blast at an early

The officers of the Deer Lake Iron and Lumber Company are at present making overtures to Eastern parties, with a view to selling or leasing the plant.

COLORADO.

ter for \$30,500. They were appraised at to Pueblo in this State two years ago, and 45,000 each.

It is reported that Charles F. Brush, of Although prepared to reroll rails, it is at Oleveland, has just sold English patents for his electric lighting apparatus to a large incorporated company in London for £30,000.

The Grant Furnace, which was built for charcoal, is doing excellently on coke and gray limestone ore, making an average of A company called the Colorado Coal and Steel Works Company has been organized mine coal and make iron and steel in Southern Colorado, but nothing has as yet been done in the way of building works."— Bulletin American Iron and Steel Association.

LABOR AND WAGES.

The strikers of the coal mines at Wampum, Pa. have carried their point, and are receiving 95 cents a ton instead of 90.

It is thought that the boiler makers and

sheet iron workers in St. Louis, Mo., will soon make a demand for an increase in wages, although they have taken no decisive

steps yet.
All the coal miners of the Pennsylvania Central road have resumed work at 31/2 cents a bushel.

The Himrod furnace at Youngstown, O. is running successfully with its new set of men who were taken on to replace the strikers.

During the strike at Scottdale (Pa.) Rolling Mill, the union men who had been thrown out of employment were accustomed to call castle, Aurora and New Albany, have had a pushing demand upon their capacity. The New Albany mills have not a single keg on sheep." We are informed that this mill has

The Campbell Creek mines are running at 3, 3¼ and 3½ cents per bushel.

Wages for roughing at the 8-inch rolls at the rolling mill at Zanesville, Ohio, are about \$3 per day.
The action of the Muck Rollers at Wheeling

in establishing a uniform price is being used as an argument at other points.

The Railroad Coal Exchange at Pittsburgh have acceded to the demand of the

miners, and are now paying 31/2 cents per The price paid in the Kanawha coal field

ow is 3% cents per bushel.

The coal miners in the vicinity of Browns-

ville, Pa., are all at work now at 2½ cents per bushel as the ruling price.

In 1860 and 1861 the uniform price paid for digging coal at Pittsburgh was 2½ cents per bushel for railroad mines and 2

cents for river mines.

The coal miners at Pomeroy, Ohio, have taken action regarding some miners who refuse to work at their dictation that even the Labor Tribune cannot defend. A report of the meeting states that the following motion was made: "Resolved, That there be no more 2%-cent coal mined at present in this bond and that if Harton's man rein this bend, and that if Horton's men re-fuse to come out they be brought out." The resolution passed with but few dissenting

The dragouts of the National Rolling Mill, Pittsburgh, struck for \$1.50 per day last week. They were getting \$1.25. The roll-ers yielded, and work went on.

A set of hands were discharged at Car-negie Bros. & Co.'s, Pittsburgh, for refusing to change a set of rolls which it was their duty to do. They appealed to the Mill Com-mittee—being members of the Amalgamated Association-but the committee sustained

The miners in the vicinity of Pardoe,

Mercer County, Pa., received an advance of 15 cents per ton recently.

The furnaces in Lawrence county, Ohio, are paying from \$1.50 to \$1.75 per ton for digging ore.

The wages of the employees of the Isa-bella blast furnaces, Pittsburgh, have been

bella blast furnaces, Pittsburgh, have been advanced.

The glass cutters, layers-in and layers-out, and teasers, at Pittsburgh glass houses, are to receive 10 per cent. advance in wages, beginning with 1880. The first named talked of a strike 4 months ago, but finally decided to awaft events. The other workmen named did suspend operations for a fowdays but finally went back.

A delegate convention of river will be held in Pittsburgh this week. The wage question will furnish the material for discussion. The railroad miners still adhere to the absurd idea of basing their scales of prices for digging on the price paid for

The Union men in Zanesville who were displaced by the Belgians, have been engaged by Mr. Schmertz for his Columbus

Under the recent advance in iron in the West, the puddlers at Pittsburgh receive cents a ton advance, making the wages \$6.25 The puddlers at Cincinnati receive \$6. Bar heating and rolling at Pittsburgh will be 82 cents.

The pipe cutters at the Reading (Pa.) Iron Works are on a strike.

Reviewing the progress of Eastern cotton mills during the past year, it is noticed that important improvements have been made in several departments of cotton spinning, as regards the opening, carding and spinning machines. The "Clement attachment" is machines. one of the longest strides that has been made for years past. The process is the natural one, and the machinery is simple. Major Henry McAllister, Jr., formerly Secretary of this Association, but now a resident of Colorado Springs, Colorado, in a recent note to this office, has embodied the following information relative to iron enterprises in his State: "The only iron works in this State at this time is the Denver Rolling Mill Company, located in Denver. This is the same mill that was formerly operated by Messrs. Faux, Fowler & Co., at Danville, Pa. It was removed from the latter place

H. D. SMITH & CO.,

Plantsville, Conn.,

Manufacturers of the

BEST QUALITY CARRIAGE MAKERS' HARDWARE.

Manufacture the Largest Variety of Forged Carriage Irons of Best Material and Workmanship.

PRICES LOW FOR QUALITY OF WORK FURNISHED.

SEND FOR PRICE LIST.

SARANAC HORSE NAIL CO.

The Saranac Nails are hammered hot and the finishing and pointing are done cold. Quality is fully guaranteed. For sale by all leading iron and hard. ware houses.

J. W. LYNDE, Secretary. S. P. BOWEN, President and Treasurer. PLATTSBURG, N. Y. STERLING & CO., Agents, 7 and 9 Cliff Street, New York.

METALLIC AMMUNITION,

Rim and Central Fire, all Sizes.

GUN WADS, Black and Pink Edge, Guaranteed Superior to any Imported.



BRIDGEPORT, CONN. PRICE LISTS WITH DISCOUNTS TO THE JOBBING TRADE ON APPLICATION.

PERCUSSION CAPS.

F. C. Trimmed Edge, W. Proof. F. L. Ground Edge, W. Proof, Foil Lined, equal to any imported.

D. W. P. Ground Edge, W. Proof, Central Fire, equal to any imported.

Musket, Paper and Tin Boxes.

Berdan, Orcutt and Wesson Primers.

Bullet Breech Caps.

PAPER and BRASS SHOT SHELLS. PAPER.

Celebrated "U. M. C." Sizes, 8, 10, 12, 14, 16, 20, Central Fire.

BRASS.

Berdan, Solid Anvil. Sturtevant, Movable Anvil. Buffington, Movable Anvil Berdan Primer.

Kenney's Patent Indentation to prevent Wads from starting.

Agents: SCHUYLER, HARTLEY & CRAHAM, New York.

Company,

2116 MARKET STREET,

ST. LOUIS, MO. JOHN D. FILLEY, HENRY M. FILLEY, President. MANUPACTURERS OF

Malleable and Gray Iron Castings,

GENERAL HARDWARE, &c. VERMONT SNATH CO., Manufacturers of

Pat. Swing Socket Snaths and also a large variety of other styles of Snaths

Springfield, Vermont. PENNOCK'S

Patent Iron-Bender

Is one of the most valuable labor-saving tools that has ever been adopted by Car Builders or Ma-chinists. They are used by many of the largest Railread Companies and Car Builders in the country. Send for circular.

PENNOCK MFG, CO., Kennett Square, Pa.

GEORGE W. BRUCE, 1 Platt St., New York,

gent for CLEMENT & MAYNARD'S Trowels, Hoes ovels, Spades and Socops. Their Trowels and Hies we entirely supplanted the English by their quality d cme. pncas, while all their goods compare advan-goously with those of other maken; and are largely

St. Louis Malleable Iron "POP" SAFETY VALVES



Purchasers, be-ware of intringements of our Patents.

Capital, \$100,000. The Consolidated Safety Valve Co., Office and Manufactory,
51 & 58 SUDBURY ST., BOSTON, Mass.

SABIN MFG. CO., MONTPELIER, VT., Manufacturers of

Bouble-Acting Spring Butts, Sabin's Lever Door Springs, Boss and Crown Springs,

Send for Catalogue. Patent Concave Ox Shoes. The only forged Ox Shoe made with concavity to fit hoof, and the best and GREENFIELD TOOL CO.,

Greenfield, Mass.

THE BEST ARE THE CHEAPEST!



The Trump Lathe Chucks, Three Jaws, Belf-Centering. Equal to the best. For drills 1/2 and under Price, \$1.50 to \$2.25.

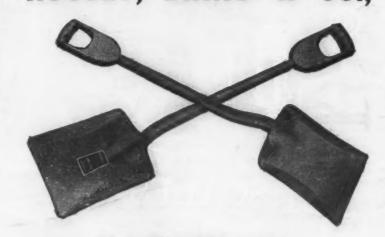


Trump Bros. Machine Co., Wilmit gton, Del., U. S. A. Send for circulars.

HAMMOND'S Window Springs



HUSSEY, BINNS & CO.,



PITTSBURGH.

SHOVELS, SPADES and SCOOPS.

ES THE M

For

ESTE

Works, Ca

Day, 1 LOCKSMI Locks, Knobs

Wrou Electro and

N. Y. MALLE

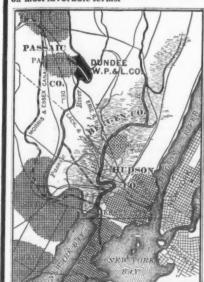
Calkers', Ca Tin, Cop

Hawsing Beet also all kinds of her Handles. A Patented Feb. 13,

VALUABLE MANUFACTURING SITES TO LET.

The Dundee Water Power and Land Company,

Offer to manufacturers one of the most desirable situations for the establishment of manufacturing industries in the United States,



Map showing advantageous location of

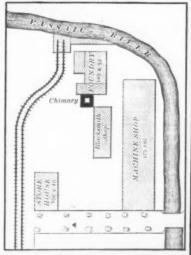
The property of this company is located at Passaic, New Jersey, at the head of navigation of the Passaic River, only in miles from New York and 4 miles from Paterson. It is located directly on the line of the Krie Ralitroad. By means of a dam and canal, both constructed in the most permanent manner, the entire water power of the Passaic River is conducted to the company's mill sites, by which is obtained a fall of twenty-two feet. Competition by both river and rail insures the lowest rates of freight transportation, and the close proximity of several large manufacturing cities, vis. New York, Paterson and Newark, secures a great advantage in respect to labor. There is at present in operation a dozen manufacturing establishments, giving emolyment to a large interest of the coation is present in operation and can manufacturing establishment eschools. Cheap illuminating gas and healthy city water are also to be had. The permanency of the mill water power is assured. The water is delivered to each mill through a canal 80 feet wide.

Among the manufacturing establishments at present located on this property are the New York Steam Engine Co., Woolen mill; Massrs. Waterhouse Brothers; Basch & Sons, both woolens and flocks; Reid & Barry; Passaic Print Works.

The establishment of the New York Steam Engine C. The property of this company is located at Pas

lens and flocks; Reid & Barry; Passaic Print & establishment of the New York Steam Engline s now for sale owing to a dissolution of the composition of the print of the composition of the print of the composition of the com

JOHN B. PUTNEY, Sec'y D. W. P. & L. Co., PASSAIC, N. J.



Plan of the works of the New York Steam

ALWAYS ASK FOR

ESTERBROOK'S

THE MOST POPULAR PENS IN USE. For Sale by all Stationers. ESTERBROOK STEEL PEN CO., Works, Camden, N. J.

8. LEE & CO., WATERS MPROVED TREE PRUNER.

No. 4 West Ave., Rochester, N. Y., U. S. A., Sole Manufactur-ers of the celebrated Waters 507 Commerce St., Philadelphia.

Tree Pruner, Made of best steel in any desired lengths. Combines slotted hook and compound lever principles not seen in any other. Having no competition for public favor it has received the highest awards in this highest awards in this and foreign countries as being the best.
Soud for our new circular and price list.

Day, Farrington & Co., Manufacturers of and Dealers in

LOCKSMITHS' AND BELLHANGERS' SUPPLIES.

Locks, Knobs, Night Latches, Gongs, Blank Keys, Wrought Store Door and Flush Bolts.

vil

Electro and Hand Silver Platers, Hand-Plated Name, Number and Pew Plates.

Office, 295 Third Avenue, NEW YORK. Factory, Brooklyn, E. D.



N. Y. MALLET and HANDLE WORKS

Calkers', Carpenters', Stone Cutters'
Tin, Copper and Boiler Makers' MALLETS,

Hawsing Beetles, Hawsing and Calking Ironalso all kinds of Handles, Sledge, Chisel and Ha

COTTON AND BALE HOOKS, Patented Feb. 13, 1877; a new combination of Hooks 456 E. Houston St., New York City,

PATENT

ANTI-WINDOW

RATTLER,

FOR

Dwellings, Cars, Steamboats, &c.



The Anti-Window Rattler supplies a long needed want; it is so simple in construction that it can be used on any window, and so complete that it will prevent the slightest shaking, no matter how great the jar or how old the sash. As shown in cut, it consists of a rubber wheel in a nickel-plated or the important mines of Lake Champlain, brass frame; is ornamental as well as useful, and does not interfere with raising or lowering the

HEATON & DENCKLA,

GRAHAM & HAINES,

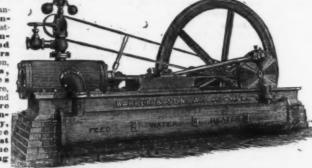
OTIS D. DANA,

Agents,
Agent,
Grambers St., New York,
Agent,
Grambers St., New York,
Agent,
Grambers St., New York,
Agent,
Agent,

The Allentown Foundry and Machine Shops.

Established in 1835. Old and reliable, Man

ufacture Steam Engines, Double Hoisting or Reversible Engines, Compound Engines, Boilers of any description. of any description, Power Pumps, Plange Pipes Thomas' patented and Bradford's patent Ore Washerles, Min-ing Machinory, Blast Furnace Work, Hot Blast Castings, Turbine Wheels, Shafting and Pulleys.



More than half of the Engines and Mining Machinery used in mining ores in the Lehigh Ipon District were built here. We have more experience in iron ore mining machinery than any other party in Pennsylvania, having most excellent facilities for doing all kinds of engineering work. Our shops are connected by a switch with competing lines in all directions. Parties needing anything in our line will do well to consult us.

W. H. BARBER & BRO., Allentown, Pa.

BLACK AND TINNED IRON RIVETS Manufacturers of every description of First Quality VETS.

H. S. MANNING & CO.,



NEW YORK.

Proliminary Report by James M. Swank, Secretary of American Iron and Steel

made more pig iron, more bar iron, more rails and more steel than in any previous year. The advance in prices during the year. The advance in prices during the year was also without precedent. To speak more specifically, the percentage of increase in prices in all lines—except, perhaps, in crucible steel—was greater in 1879 than in any preceding year, if allowance be made for the premium on gold during the war, the advance in 1879 being on a gold basis of values. The importations of pig iron, old rails and new iron and steel rails during the year were unexpectedly large, recalling our experience before the panic of 1873, while our importations of iron ore were not only exceptional in their magnitude, but phenomenal, amounting to about five times as many our importations of iron ore were not only exceptional in their magnitude, but phenomenal, amounting to about five times as many tons as were ever before imported in one year. But the most remarkable fact in congection with the history of the American nection with the history of the American iron trade for 1879 remains to be stated. Notwithstanding all the activity that has been mentioned, the demand for pig iron, iron and steel rails and iron ore was not of our manufacturers, and to the excitement caused by the suddenness of this demand the rapid advance in prices is mainly due.

present below a careful estimate of the production in 1879 of pig iron, iron rails and steel rails, compared with the actual production of these articles in 1878; to which we have added the probable importation in 1879 of pig iron, old rails and other old iron for remanufacture, and new iron and steel rails.

1873, when 21,227,952 tons were produced. The production of 1878 was only 17,605,262 tons, all told. These figures we obtain 1rom Mr. John H. Jones, and they may be accepted as reliable.

The large importations during 1879 of pig iron, old iron, iron and steel rails, and iron ores will attract attention. remanufacture, and new iron and steel rails, compared with actual importations in 1878. The tons used are gross tons of 2240 pounds. We also add the production of the Lake Su-perior iron ore mines in 1878 and 1879, with the probable importations of iron ore in both years. No means exist for ascertaining the production of all the ore mines of the coun-

	1879 than in 1878.	0	
	Pig Iron and Old Rails. Production of pig iron Importation of pig iron Importation of old rails and other old iron	1878. Gross tons. 2,301,215 66,503	1879 Gross tons 2,800,00 275,00
1	Total	2,373,276	3,250,00
	Production of iron rails Production of steel rails Importation of iron and steel rails	388,294 499,817	450,00 650,00
ı	101/0	- 4	00,00
	Total	788,120	1,160,00
	Lake Superior production Importation		300,00
	Total	1,156,631	1,650,00
Ì	We have not ventured		

the production of rolled iron in 1879, but, excluding iron rails, which are noticed above, it was probably 20 per cent. greater than in 1878, when the total production, not including iron rails, was 1,100,612 gross

In the table given above the probable In the table given above the probable consumption of pig iron in 1879 is not fully indicated by the figures of production and importation; to these must be added a reduction during the year of the stocks of domestic pig iron in the hands of the makers and unsold at the beginning of the year. These stocks amounted at that time to 513, co4 gross tons. The quantity of unsold domestic pig iron at the beginning of the new year cannot be so great as it was a year ago.

In the following table we give the prices at Philadelphia and in Pennsylvania, of various iron and steel products on the 1st of January, 1879, and the 1st of January, 1880, with the percentage of increase in the intervening year. The prices are fair aver age quotations:

Articles.	Jan. 1, 1879	Jan. 1, 1880.	Percentage of increase
No. 1 anthracite foundry pig iron in Philadelphia Best refined bar iron in	\$17.00	\$35.00	105
Philadelphia	42.56	71.68	63
works in Pennsylvania Rest iron rails in Phila-	43.00	70.00	67
delphia	34.00	57.00	68
Philadelphia	2,10	4.25	102
delphia	19.00	36.00	89
Philadelphia	20.00	34.00	70

Such a rapid rise in prices as is here shown, we have already remarked, has never before taken place in one year in this coun-

absolutely without parallel.

The year 1879 was also remarkable for the new impulse which it gave to the building of railroads. About 4000 miles were built during the year, against 2747 in 1878, built during the year, against 2747 in 1878, 2177 miles in 1877, 2657 miles in 1876, and 1775 miles in 1875. The mileage of 1879 was equal to that of 1873, which was 4069 miles. The greatest mileage in any one year was in 1871, when 7608 miles were built. The increased demand for rails for new roads in 1879 was one of the leading causes of the revival in the American iron subjects of Great Britain, receive \$20 a ton new roads in 1879 was one of the leading causes of the revival in the American iron trade, but a more potent cause was the sudden demand last spring by existing roads for rails, cars and locomotives to meet the requirements of increased transportation of agricultural products, and to compensate for the wear and tear of the hard times. The increased railway mileage of the year was expected, but the wild scramble by the old roads for new rails was not, and the

The American Iron Trade in 1879. rail mills of the country were placed at a disadvantage through no fault of their own. They had vainly urged the officers of many of the leading railroads to purchase rails in 1877 and in the first part of 1878, when prices were very low, and as a consequence of the refusal of these roads to give out orders, the mills were compelled in those years to run but a part of their time. The railway officials not only missed their opportunity to buy rails at low prices, but they precipitated by the suddenness and magnitude of their demands last summer the excited condition of the market, which still continues, and which all thoughtful busi-

ness men deprecate.

The business of building iron ships did not improve in 1879, owing partly to the lack of encouragement by the general government and partly to the high prices for iron and other materials. The New York elevated tall ways, which gave to the iron trade of the country a much needed lift in 1878, were still further extended in 1879. The manufacture of steel wire fencing was greatly ex-

The production of both anthracite and bituminous coal during 1879 was greater than in any previous year in our history. Very great activity prevailed in the Connells-ville coke region during the last three quartron and steel rails and iron ore was not met, and many orders have been carried over to the new year which consumers sought in vain to have filled in 1879. The business embraced in the orders which were necessarily deferred to the new year amounts to a very large percentage of the actual consumption of the old year. Such a sudden and powerful stimulus to the demand for the production was largely increased but the production was largely increased the consumption of the old year. Such a sudden and powerful stimulus to the demand for the production was largely increased the consumption of the old year. Such a sudden the production was largely increased the consumption of the old year. consumption of the old year. Such a sudden and powerful stimulus to the demand for iron and steel and ore, following a period of great depression, was not expected by any of our manufacturers, and to the excitement, and prices and not greatly available, and prices and price

of these importations should not be over-looked—they occurred mainly in the last six months of the year, and are, therefore, all the more suggestive. They should teach our manufacturers that the English policy of piling up iron in bad times to be prepared for good times is a safe policy to follow; that they should supply the home demand for iron products, and thus keep out foreign importations; and that it is the worst possible policy in a financial sense, and the worst possible statesmanship, to buy ores or any other raw material abroad when the undeveloped resources of such States as Michigan and Virginia could supply all wants. These importations teach still another lesson, and we tations teach still another lesson, and we hope that it may receive instant attention. When the tide in the present demand for iron and steel begins to ebb, as it must ebb some day, will it be safe in that day to have duties on foreign iron and steel lower than they now are? When orders again slacken and prices again fall in this country, prices and prices again fall in this country, prices abroad will also fall, and, if our tariff be lower then than it is now, the iron industry of this country, with high wages and high freights, will once more be crippled and

Experience has taught us that it is not safe to prophesy what any new year has in store for the American iron trade. We will, therefore, simply state what probably every person in the trade already knows, that more furnaces and mills will be running in 1880 than in 1879, and that, as a consequence, our iron and steel production in the new year will be greater than in the old year. After the 1st of Aprif it will be fully equal to the demand in all lines. Whether prices will remain an as high as they are or go still higher, no man can find out, nor whether we will build more railroads in 1820 than in 1879. It seems certain that our importation of iron ore in 1880 will be larger than in 1879, large contracts having already been made. Probably 500,000 tons will be imported in 1880. We regret that will be imported in 1850. We regret that this should ever have become necessary. Whether importations of iron and steel shall increase in the new year depends partly on the course of prices at home and partly on the action of the present Congress. The steel blooms bought during 1879, aggregating considerably less than 50,000 tons, have not vet arrived.

Zanzibar.—American commerce with Zanzibar is steadily growing, that being a central point on the Eastern coast of Africa for the destination of commodities. Trade is largely in control of natives of British India. The population of the island, which is about 50 miles in extreme length, surrounded by coral reefs, number 300,000, including Arabs, and negroes in a state of servitude. Exports are chiefly made up of cloves, ivory, gum, coal, &c. A recent letter from Zanzibar says a single invoice of cloves taken by an English steamer was Zanzibar.-American commerce cloves taken by an English steamer, was valued at \$250,00c. There are several before taken place in one year in this country, except during the war; but if allowance be made for the depreciation in the currency in that period the present rise is absolutely without parallel.

The year 1850, occ., to the United States to the value of a few hundred thousand dollars per annum, in exchange for cotton and oil. Of late it is observed that the export of cotton cloths to Zanzibar is becoming a formidable item, two cargoes having gone from Boston only last week, comprising 3200 bales, or 3,047,686 yards, valued at \$208,000. A feature at Zanzibar is an English ship

The Iron Age

Metallurgical Review.

New York, Thursday, January 8, 1880.

DAVID WILLIAMS - - - Publisher and Proprietor JAMES C. EAYLES - . . Eduor. JOHN S. KING - - - Business Manager

RATES OF SUBSCRIPTION

INCLUDING POSTAGE.

IN THE UNITED STATES, BRITISH AMERICA AND

TO ALL OTHER COUNTRIES. PER ANNUM, POSTPAID.

Weekly Edition: \$5.00-£1-25 francs-20 marks-1 florins—6 roubles (coin)—25 lire—20 pesetos.

Semi-Monthly Edition: \$2.50—10/—12½ france—11
marks—6 florins—3 roubles (coin)—12½ lire—10 pe

Monthly Edition: \$1.25-5/-6% francs-5 marks-florins-1% roubles (coin)-6% lire-5 pesetos. REMITTANCES

should be made by draft, payable to the order of David Williams, on any banking house in the United States or Europe; or, when a draft cannot be obtained, in postage stamps of any country,

NEWSDEALERS OR BOOKSELLERS

in any part of the world may obtain *The Iros Age* through the American News Company, New York, U. S. A.; the Wilmer & Rogers News Company, New York, U. S. A., and London, England; or the San Francisco News Co., San Francisco, California, U. S. A.

RATES OF ADVERTISING.

One square (12 lines, one inch), one insertion, \$2.50 one month, \$7.50; three months, \$15.00; six months \$25.00 one year, \$40.00; payable in advance.

DAVID WILLIAMS, Publisher, 83 Reade Street, New York.

The publishers of The Ironmonger, 44a Cannon street, London, Eugland, will receive orders for subscriptions and advertisements on our regular terms.

CONTENTS.

First Page.-Management of Steam in Factories. Trade with Brazil. Copper Rolling Mills for the Pacific Coast. A Large Steel

Third Page.—Melting Iron with Coal and Coke in Foundry Cupolas. The New York State nterest Law.

Fifth Page.-The Effect of Reducing Agents upon Copper Alloys.

Seventh Page.—The Effect of Reducing Agents upon Copper Alloys (Concluded). Jap-anese Tariff Revision. Production of the Krupp

Ninth Page .- Industrial Items.

Eleventh Page .- Industrial Items (Concluded). Labor and Wages. Thirteenth Page .- The American Iron Trade

of 1879. Zanzibar.

Fourteenth Page .- The Colonial Movemen in Europe. Some Surprising Features of the Tay Bridge Disaster. Pittsburgh Riot Echoes. Fifteenth Page.-The Western Iron Trade Metallurgical Notes. J. Lloyd Haigh's Irregu-

Seventeenth Page, -Trade Report. Gen-

larities.

Eighteenth Page.-General Hardware (Con

Nineteenth Page .- General Hardware (Concluded), British Iron Market. Iron. Metals. Coal. Imports. Exports. Old Metals, Paper

Twentieth Page.-Philadelphia (Con cluded). Pittsburgh. Chattanooga. Cincinnati. Baltimore, St. Louis. Richmond Louisville. Our English Letter.

Twenty-second Page .- Our English Letter (Concluded). Annual Review.

Twenty-third Page .- The Iron Age Direc

Twenty-sixth Page .- New York Wholesale

Twenty-seven'h Page.-New York Wholesa

Thirty-third Page.-Philadelphia, Buffalo Chicago and Pittsburgh Hardware and Metal

Thirty-fifth Page .- Boston and St. Louis Hardware and Metal Prices.

On another page we print an interesting report by Mr. Swank, Secretary of the American Iron and Steel Association, which

understood to be preliminary to his anaual report. It presents, as fully and accurately as circumstances will permit, the statistics of the iron and steel trades of this Mr. 'wank's calculations-which are rather was the year of largest production and greatest reacned 2,800,000 gross tons; of rails, than rails, 1,100,612 gross tons. What Mr. with Spanish America and Brazil. Swank says about the tariff merits careful

in mind in all changes of duties, and to consider whether a rate which would be adequate under such conditions as exist for the moment, would not mean the ruin of our iron industries when times change and the demand shall fall below the ability of our iron works to meet it. However we may argue the case theoretically, the practical fact remains that iron cannot be produced here as cheaply as it can abroad. We have many and great natural advantages, but we have also long transportation and high freights we pay higher wages to labor, and capital here commands higher rates of interest. Time may change all this-the sooner if, by a continuance of judicious protection, w promote the development of our own resour-ces and place our industries on a substantial and permanent basis. The history of pro tection in this country has amply vindicated all the claims of those who were instrumental in securing it. But there always was-and probably always will be-a large class who, in matters of statesmanship, cannot look beyond the immediate present, and from this class may be expected the efforts likely to be made this winter to reduce the rate of duty on several important classes of iron and steel manufactures.

The Colonial Movement in Europe.

Since 1873 most of the manufacturing nations have felt the necessity of finding an enlarged export field for their goods. Great exhibitions have been held, the consuls have been instructed to report from all quarters of the globe, economic questions have been more carefully studied, new lines of steamers have been subsidized, and greater attention than ever has been bestowed by countries which have colonies upon stimulating active commercial intercourse with them The wretched colonial system of some of these countries has been materially changed, for the doctrine that a distant colony cannot be retained by the mother country by mere force is now universally acknowledged. Even Spain has recognized this by liberating the slaves in the island of Porto Rico, and by finally making such political concessions to the Cubans as to induce them to lay down their arms. Errors under which Europe has labored since the close of the fifteenth century have at length been mended, or at least mitigated, and good will toward distant possessions now rules the councils of the leading maritime nations of the old world.

Several of the great nations of Europe never had colonies beyond the Mediterranean-for example, Italy, Germany and Austria. Even they have of late years sent out scientific expeditions, and are trying hard to gain a foothold on some distant shore. Wars have been, and are even now, waged with no other object than to expand national trade. Russia, excluded by the jealousy of Western Europe from an outlet to the Mediterranean (as legitimate as our Mississippi outlet in the Gulf), has not shrunk from a costly war, incalculable in its conse quences, in order to wrest the Golden Horn from Turkey. England's wars in Afghanistan and at the Cape of Good Hope have had no other object than the securing of trade. The rivalry between Russia and England in Asia is commercial rather than political, for both countries have more land than they can take care of conveniently; and Russia sold Alaska to us because its real interests

In thus developing an unusual amount of activity for the expansion of trade the great ommercial nations, including ourselves, acknowledge the fact that the industrial branches cannot be kept under restraint, but are bound to grow; that instead of curtailing or abandoning an otherwise promising manufacture, it is more advisable to create new markets for its product, even at great national sacrifices. The good results are daily becoming more evident, for without this feverish anxiety to expand trade, the people of Great Britain would have succumbed to a panic last fall. But they know and feel that their government will shrink from nothing to widen the circle of British usefulness in distant lands, and the vars waged, though iniquitous and unprovoked, are nevertheless popular because they all tend to this same end. Thus the acquisition of Cyprus is approved, because in reality it secures the Isthmus of Suez without directly offending France, and be cause there is a latent conviction that Cyprus will yet become as great a commeror Hong Kong.

As for ourselves, we are perfectly content to see others get the hot chesnuts out of the ashes for us. There is no flourishing British colony but brings us a large trade and money. In order to show the enormous importance to American trade of the joint British colonies, sands of dollars, contains the trade of each colony, however small, in 1876, with the inward and outward tonnage in thousands facts of the case were only guessed at when Pittsburgh, or any other center of the iron planers, besides large hammers, ranging of tons, and we have added thereto our in- a party of gentlemen made it their business tercourse with each great division during to crawl out to the hrink of the chasm. country for 1879, and deals guardedly with the fiscal year 1877. From this it will be the problem of the immediate future. From perceived that in 1876 the British colonies had seen no one on either shore knew did an aggregate business with other coun- how to interpret the fears which naturally m.ce than estimates-we learn that 1879 tries and among themselves of \$1,622,920,000. grew out of the previously unexplained In the same year we transacted with them tivity. The make of pig iron business to the amount of \$123,268,000, the train lights. which is some 7 per cent. of the whole, 1,100,000 gross tons; of rolled iron other about double the percentage of our trade full telegraphic reports received the day question of how the revival should be under-

herself, is a matter of vital interest to us, chants, that whatever benefits British com-

We cannot be expected always to approve English in extending their political and mercial empire, and they are quite indifferent to what we think of them; but the any member upon which the strength or conresult, the new fields of trade, are invariationally of the bridge depends. We hear bly welcome to us.

General Trade of the Colonial Possessions of Great Britain and our Trade with them.

	Genera	l trade.	In and	wit	ric'n h Br	
	Cal. ye	ar, 1876.	ton-	Fiscs	l yes	ar, '77
	Import.	Export	nage.	Imp.	Ex	port.
ilibraltar. falta anada. ew foundl'd. eew foundl'd. eew foundl'd. eew foundl'd. ind falta	50,400 97,095 7,595 1,225 815 770 120 8,500 15 695 190 700 120 305 305	55.090 84,340 6,835 375 1,030 535 160 7,584 780 275 715 140 385 720	4.163 52,05 5,917 538 151 70 123 141 833 8 62 19 45 16 26	47 26,046 6,431	23	38,13
Vincent arbadoes renada obago rinidad ulana alkland Isl's idla raits sylon ongkong	775 5,140 575 275 8,390 9,935 135 220,940 59,615 27,815	915 4,820 895 400 8,185 15,155 185 301,460 55,115 22,550	45 351 157- 14 517 432 45 5-429 4,006 2,325 4,360	3,406 10,726	43 3 1,037	1,845 863
ustralia ape	635 227,535 29,150 5,115	560 215,470 18,185 9,285	6,583 779 139	1,476	105	
erra Leone, old Coast ambia . Helena	1,030 8,230 445 440 2,385	1,790 2,325 430 230 3,005	284 175 110 02 282	1,023	31	1,377
auritius ll other	11,420	16,370	513)	103		53
Totals	792,550	830,370	44,007	50,529	3,74)	73,137
				-	26.39	

The preceding table shows the importance of a small spot like Gibraltar with 4,163,000 tons trade, Malta with 5,205,000 tons, the Straits with 4,006,000 tons, and Hong Kong with 4,360,000 tons-places to which, on an average, we ship annually some \$20,000,000 of domestic products alone. We have, therefore, every reason to wish the Colonial move ment in Europe success. France, Spain, Portugal and Holland may do much on their part also, as their necessities compel them to stimulate export, and we shall be glad if their expectations are more than fulfilled.

Some Surprising Features of the Tay Bridge Disaster.

Mr. Edward Gilkes, of Hopkins, Gilkes & Co., builders of the Tay Bridge, part of which lately fell into the water and left a gap through which a train plunged, has sent cable dispatch to the Herald, of this city, from which we take the following: "The velocity of the wind as registered at Dundee on the night of the disaster was 42, an amount of pressure quite sufficient to over set the train; and the guard rails on the windward side could not prevent the upper part of the carriages from striking the girders. This might cause the damage by destroying the unity of the leeward girder, like special pleading, inasmuch as it is not of a hurricane as to be classed among the known whether the bridge fell before the train most severe on record. It only gives a started to pass over it, or whether the derail- pressure of about 9 pounds per square foot ment of the train by the wind caused such a of surface exposed to its direct force; but shock as to destroy the strength of the struc- this pressure seems to have been great ture. It is not our purpose, however, to venture any criticisms on the material or con- of 12 or 13 spans. The fact that the piers struction of the bridge in addition to those which appeared in our columns two weeks does not give Mr. Gilkes' 1872 argument ago, until in possession of the results of the any additional force. Accidents at bridges official investigation which is already in seldom occur at the piers, but between progress. But the disaster suggests some them, and in calculating the strength of a thoughts concerning the management of the bridge we must begin and end with its bridge which are not without interest.

rain wrecked a previously sound span by that the bridge whether it plunged through an existing gap, with sufficient velocity to overturn it, is certainly open to question; but to start it on perilous a journey without knowing whether the bridge was intact or not, seems cial success as Gibraltar, Malta, Singapore the Frith, it was not known for certain whether it had started to cross, and the only men on the further side had seen moving lights, supposed to be those of the train, which had suddenly been extinguished after a shower of sparks had been seen for an in-The people on the other shore seem we have drawn up a table which, in thou- to have had no more certain knowledge whether the train which they knew had

If these assumptions, based upon the very

and only confirms the correctness of the first place, a train should never be al- Guardian says the facts are otherwise. general sentiment among American mer lowed to venture on a long bridge during a Speculation is weakening, but prices are still dark and stormy night, until it is known rising in Staffordshire and South Wales, and merce abroad also redounds to our advan- that the bridge is at least standing through- a further advance is considered probable. out its entire length. This involves some It is to be hoped that this is true, and that expense, as watchmen must be stationed at the large East Indian and New Zealand conand admire the methods adopted by the points along its line, and some system of tracts have given the market a strength electric communication maintained which which is not wholly dependent upon a conwill give instant notice of the rupture of tinuance of large orders from this country. much of the excellence of British railway management, the completeness of British railway equipment and the benefits secured by holding the companies to a strict accountability; but when such a structure as the ment. The attempt that was made to induce Tay Bridge is left unguarded from end to the State of Pennsylvania to assume the end, and a train is allowed to start across it payment of the claims, and the scandals without any assurance that the greater part of it has not fallen; when this train plunges into the water and it is hours before any one knows for a certainty what has become of it, we grow a little skeptical as to whether they do things better in England han here after all. We know of long bridges in this country which are not commonly regarded as "triumphs of engineering skill," and which no one would go half a mile to ee. They are merely long bridges, which nake the average passenger feel a little nervous at the idea of crossing them; and yet they are probably the safest parts of roads which can show a runarkable immunity from accidents. They are patrolled day and night by trustworthy watchmen; signals are provided which give instant warning of any danger, and o conductor would venture on them by ay or night without the assurance from ignals which cannot go wrong-unless by iving warning of danger where none exsted, owing to some derangement of the ircuit—that all was clear. It is known at he opposite end when a train starts, and its sylvania Railroad Company. Assuming, progress as it passes the several stations is recorded. Such bridges might fall and their claims, the schedule would stand as carry the trains with them; but the fact of an accident would at once be known, and there would be no question as to whether the bridge fell before or after the train struck it. In the case of the Tay Bridge

> What Mr. Gilkes has to say in his cablegram, in explanation of the accident, contrasts somewhat strongly with what he said 'the action of the wind on this bridge will vitation of the County Commissioners, which depends upon it about 800 more, and so, giving 800 feet for a train above, we have 2400 feet. Twenty-one pounds per square foot is the force of a very strong gale, but it would take no less than ninety-six pounds per square foot on the surface given to overturn the pier. Even the most severe hurricane on record would equal only one-half this resistant power."

there seems to have been no such provision.

If Mr. Gilkes meant what he said in the article above quoted, and had an intelligent reason for the faith that was in him, how is it that a wind moving at the comparatively and another violent guat would bring about low velocity of 42 miles per hour wrecked complete ruin." This sounds very much the bridge? A 42-mile blow is not so much enough to have caused the destruction were not overturned, so far as we can learn, weakest points.

The fact that it is not known whether the However regarded, the disaster shows demands in this branch of industry are sigbeing everturned against the girders, or struction, was not properly guarded, and it ergies of railway corporations and the varied shows that it was, not so well guarded and that which the balamity has caused if the protected as it should have been. The propriety of sending the train across under the Long bridges should be well guarded and products they handle have doubled their circumstances, when the wind was moving policed, and if experience has shown that running trains across exposed embankments, or high trestles, or long bridges. when the velocity of the wind attains or exceeds a certain point is dangerous, it is desirto savor of criminal recklessness. Hours able that railway travel across such points after the train had plunged to the bottom of should be suspended until the storm abates. This is done in steamboat running, and the fact that travelers in a railroad car know so reason for supposing that it had was that little of the conditions existing outside as not for several years. Another characteristic whether it is safe to go on or not, throws additional responsibility upon railway man-

news which would have sounded more nastarted had crossed safely, and the terrible tural if it had come from Philadelphia or that source comprise four or five 60-inch trade of this country. It was to the effect given notice that they would take no more 35 feet long, made by Wm. Sellers & Co. movements of what were supposed to be at time of delivery. This sounds very the train lights.

This sounds very a large scale, to be used in raising and low-ring cars between the first and second stories. after the disaster, are warranted by the stood. The London Times lately asserted manufacturars generally are as busy as in the A trade of such magnitude, besides the facts, we think they indicate a shameful that the current advance in iron is wholly due rushing times of 1869, and prices are adconsideration. It is well to keep the future enormous dealings we have with England negligence on the part of those respont to American orders, and hence must be re- vancing.

sible for the bridge and its care. In the garded as temporary. The Manchester

Pittsburgh Riot Echoes.

The losses resulting from the Pittsburgh riots of 1877 seem in a fair way of settleconnected with the "riot bill" in the last Legislature of that State, are fresh in the minds of our readers. The attempt failed, and as the Supreme Court of the State has decided that Allegheny County must pay the losses under the law, the county officers have been quietly at work trying to effect a compromise with the largest creditors, in order, first, to reduce their claims to something near the actual loss, and secondly, to see if for prompt payment, in place of a long and tedious litigation with a somewhat doubtful result, better terms could not be made with the losers. The negotiations were chiefly with the Pennsylvania Railroad, which was the heaviest claimant, the face of this claim being some \$2,300,000 with accrued interest, bringing it up to \$2,600,000. The Railroad finally consented to take \$1,600,000 in lieu of its claim if paid in 60 days. The other claimants have filed claims to an aggregate, in round figures, of \$1,400,000, but there is no doubt they would be willing to compromise on like equitable terms with the Pennhowever, that no reduction is made in

been imprinter more

five Iron but i

than for t at t hand altho-meta

the t

price June

new

begu price

wage eleme on th

facts.

of the

to se

table

ally b

\$32 in of th

was the m

mill m

prove

not or

selves

follows:						
	THE	CL	LIM	S.		
Pennsylvania Rail	road.					\$2,600,000
Other companies.						. X50,000
Freights			** * * *		******	. 800,000
Private Property.						. \$50,000
Pullman Car Com	pany.			0		. 76,300
Keystone Hotel Co	ompai	ny.				32,700
Grain elevator						. 210,000
Total						.\$3,019,000
7. 1. 1. 11		. 7				

in an article contributed to Engineering in exception of the Pennsylvania Railroad's, March, 1877, concerning this same bridge. can be largely reduced. At a meeting We quote as follows: "A consideration of held at Pittsburgh last week, at the indissipate the often advanced theory that composed of county officials connected at some period it will be blown over. The with the fiscal affairs, legal counselors, exposed surface of one large pier is about and a number of the most prominent 800 square feet, and of the superstructure and sagacious business men, representing leading business interests in all departments, and holders of property as well, the following resolution was passed, the opinion being that a compromise without further delay was advisable:

Resolved, That it is the sense of this meeting that the county authorities, in cases in which, in their judgment, reasonable compromises can be effected with the holders of claims arising out of the riots, should make such compromises, and in cases where no reasonable compromise can be effected, they should resist such cases to the ut-most extent of the law.

A 5 per cent. bond will probably be issued to meet the payments. This gives some hope that, for the present at least, this vexed question will be settled. We do not believe, however, that Allegheny County will be satisfied with it as a final settlement. They still claim that in equity the loss should be borne by the whole State, and it is more than probable that in time the State will assume it. One strong argument against its assumption by the State last winter was the belief that a fraud would be attempted in fixing the

Cheering intelligence comes from the manufacturers of machine tools, particularly such as are designed for heavy work. The whether good or bad in cou- nificant, as indicating the recuperative en will be a cause of still deeper regret than mechanical industries in which machinery is used. One of our largest agencies in this working force within the last six months and are unable to keep up with the orders pressing upon them. There are no machine on hand, and they are taking orders for delivery from four to six months hence. It is noticeable that these orders are now about equally divided between railroad companies and manufacturers, whereas the latter, until lately, may be said to have done nothing to be in a position to decide for themselves of the times is the indifference of manufac turers to foreign orders. Exports, however, continue fair. One large Philadelphia con cern are fitting up shops for a railroad in Cuba, and are sending machine tools in con A recent dispatch from England contained siderable quantities to Australia for similar purposes. The more recent orders from from two to three or four tons. A notable that the North Staffordshire bar makers had sale is the great planer, to feet square and contracts for future delivery except upon for the Centennial Exhibition, which now agreement, on the part of the contracting goes to Bethlehem, Pa. The same firm have parties, to take the iron at the price ruling taken a contract for hydraulic machinery of Great Britain seems to be divided on the at the proposed Fifteenth street depot in

orders vembe ber, th the mi men gr men be the las vanced asked The fo at Pitt minou These

> Cond We lithe fur

till and hat gth

lals

the

1 in

mpt

the

the

tual

tter

ers.

g it

ants

und

onn-

ing.

the

ad's. eting

in ected

nent ting

part

MIOD ther

sued

1 be

ld be than ne it.

hat a

the

the The

e sig-

aried

n this

whose nths,

rders

hines.

about anies

r, un

thing

ristic ufac-

rever,

ad in

imilar from

o-inch

nging

otable

c Co.,

now

ery on lowtories ot in ie tool in the re ad

no

advance in prices that have taken place, a depression and advance unparalleled in its history. From the lowest point of the year there has been an advance in Pig Iron of fully 100 per cent, of Merchant Iron about the same, of Nails 133½ per cent. The advance has also come about naturally, without any united action, and for that reason has been sustained. We give below a resume of the substained. We give below a resume of the twelve that are out in the sustained. We give below a resumé of the market for the past year.

Ore.

The Ore market has shared in the general improvement, though as most of the Ore that is used in the furnaces West is contracted for early in the year, it has only been on the surplus that the heavy advance has been realized. The prices for the season's delivery were fixed early in the year at 50¢ per ton advance over the prices ruling in 1878. Sales were made of large lots tallic iron as shown by the analysis. The hematites sold at \$4.50. A peculiar feature of the ore market early in the season was the refusal of certain large consumers of Bessemer ores to pay the advance asked by the Lake Superior mines. This led to the largely increased development of the Menominee region, and also to the importation of foreign ores. With the improvement in the price of iron and the blowing of furnaces, as well as the increased make of those in blast, came a demand for ore. What was left unsold rapidly advanced in price, and under the stimulus of the demand the production of Lake Superior was pushed to a point never before reached, the total being between 1,300,000 and 1,400,000 tons. The price at the close of the year was almost anything the ore men chose to ask, but was for first grade, say, \$12 (@ \$13 per ton. It is extremely difficult to forecast what the prices of ores will be for 1880. The high prices of Lake Superior have stimulated the prospecting for ores in other regions with largely increased development of the Me-

Pig Iron.

been so decided, and its salient features have impressed themselves so firmly upon those interested, that we need but refer to them, interested, that we need but refer to them, more for the purpose of preserving the record in a connected form than for imparting information at the present. For the first five months of the year the market for Pig Iron at Pittsburgh was remarkably steady, but it was the steadiness of inaction rather than of strength. Consumers only bought for their immediate wants. Though stocks at the furnaces and mills and in process. than of strength. Consumers only bought for their immediate wants. Though stocks at the furnaces and mills and in brokers hands were known to be very low, and although mill men anticipated a rise in metal, yet the future was so uncertain, and the time when the rise would come was so problematical, that they dolayed buying and prices did not move upward. The first of June, however, witnessed the change. The new ore, which had been sold at an advance, begun to arrive and the furnaces put up prices, especially for Pig Iron made from all ore. During this month the question of wages for boiling was settled, and this element, which had had a depressing effect on the market, was removed. The Pig Iron make t at once felt the effect of these two facts. Buyers believing that the turn had come began to buy eagerly, and every pound of the small stocks at the furnaces for weeks after others had in the market was sold, and many orders for come began to buy eagerly, and every pound of the small stocks at the furuaces that was in the market was sold, and many orders for futures placed. The eagerness of the mills to secure stocks for the orders they had taken for bars, and also to provide for future orders, sent the price up, and, as the table below shows, prices advanced graducally but steadily from June to August, when ally but steadily from June to August, when cently there has been no doubt or cross ally but steadily from June to August, when they took a rapid jump from \$18 @ \$22 to \$22 @ \$30 in September, and to \$28 and \$32 in October. The cause of the slowness of the advance in the summer months was the result of the doubt that existed in the minds of many of the best informed was the result of the doubt that existed in the minds of many of the best informed mill men as to the permanency of the im-provement, but as orders for Merchaut Iron not only came in freely, but forced them-selves upon the mills, the doubters gave way and hurried into the market to cover their orders for Merchant Iron with Pig. In No-vember, and indeed until the last of Decem-ber the market was somewhat sluggish as ber, the market was somewhat sluggish, as the mills had about all the stock they desired, but as ore got scarcer and higher furnace men grew stiffer in prices, and as the mill men began to display some anxiety toward the last of the year to buy Pig, prices ad-vanced sharply, and the year closes with \$40 asked for all-ore extra red-short Mill Irons, and some few sales reported at that price. The following table shows the range of prices at Pittsburgh of Gray Forge Coke or Bitu-minous Pig Iron, smelted in whole or part from Lake Superior ores, for the year 1879. These figures are compiled from actual sales:

January	\$16.50 @	10.50	July	\$17.50 @	21.00
February	86.50 @	19.50	August	18.00 @	22.00
March	16.50 @	19.50	Sept	22.00 @	
April			October	28.00 @	
May	17.50 @	20.00	Nov	29.00 @	33.00
Jnne	17.50 @	20.00	Dec	31.00 @	36.00

Locality.		In	Blas	st.		Out of Blast.							
	'76.	'77	³78.	79-	18n,	'76.	.7Z.	'78.	179-	180			
Shën go Väl. Pittsbur & h	13	11	12	8	18	20	30	19	22	13			
& vicinity.	6	6	7	8	10	5	5	5	2	- 1			
Juniata and Conem'gh	15	12	13	13	15	20	8	8	5	1			
Yough Val		3	2	3	3	1	2	3	2	1			
West Va Mahon'g Val	3	10	8	3	14	3	11	12	3	1			
Hang, Rock.	8	4	6	4	8	2	2.1	10	13	- 8			
Vario's Ohio	19	16	21	1.6	24	7	12	15	20	IC			
Missouri	3	2	0	2	4	6	6	9 8	10	8			
Total	77	69	75	64	102	78	86	90	95	56			

Shenango Valley, are in this condition, two others have gone in blast since the date of our report, and two others are being rapidly prepared.

Merchant Iron.

The first six months of 1879 were probably the most trying that the rolling mills of the West ever experienced. The year opened at Pittsburgh with eight mills idle, with prices for Bar Iron below the cost of production, the average selling price for good Bar Iron being 1.70¢ @ 1.75¢. As we remarked in our review of 1878, "There is ing in 1878. Sales were made of large lots at \$7.50 for Republic, \$6.75 for Champion, \$6.50 for Lake Superior, \$5.50 to \$6.00 for Menominee, varying with the units of metallic iron as shown by the analysis. The saw that there was a prospect of increased activity in certain lines, but no one had any idea of what the result would be. One of the shrewdest of Western ironmasters said the shrewdest of Western frommasters said:
"Iron will go to 2.25¢ before January 1st, 1880. It may go to 2.50¢." The result is it has gone to 3.50¢. There are at least four features of the market the past year that are exceptional. The first is, of course, the rapid advance. It is almost an axiom in commercial circles that it is easier to get prices down than to get them up again; 1870 seems to disprove this, for, while the 1879 seems to disprove this, for, while the decline was fought every step of the way and was slow, the advance was with a bound. A second feature is that in nearly every instance the full card rate has been between the control of course refere only to obtained. This, of course, refers only to the last six months of the year. The price for one ton and 1000 has been the same. A third characteristic has been that in many cases iron has sold in advance of the card. high prices of Lake Superior have stimulated the prospecting for ores in other regions with an energy and determination never before evinced. The importation of foreign ores will also be largely increased. On the other hand, it is probable that but little standard Missouri ore will be sent to upper Ohio ports, as it will be used in the vicinity of St. Louis. Of course Lake Superior ores for 1880 will be higher than they were sold for in 1879, but the problem is how much will the advance be?

A series of trial meltings were made in an experimental furnace, about the construction of which nothing is given beyond the statement that it was small and imperfect, and was lined with graphite. The charges introduced weighed 1200 pounds, the iron containing:

Carbon. 3.73 Copper. 0.25 Silicon. 3.73 Copper. 0.25 Manganese. 3.56 Phosphorus. 0.60 Manganese. 3.56 The ore used for washing held:

The ore used for washing held:

Oxide of iron. 0.6 of the charges introduced weighed 1200 pounds, the iron containing:

Carbon. 3.73 Copper. 0.25 Manganese. 3.56 Phosphorus. 0.60 Manganese Manganese. 3.56 Phosphorus. 0.60 Phosphorus. of extras, including the prices for cutting to length. It should also be noted that the mills have in no case seemed anxious to make the advance. The wisest heads have regretted that the condition of the market The course of the market during 1878 has was such as to demand an advance, but when forced upon them, as every advance this year with the possible exception of the first, has been, they could only take it. The course of prices has been as follows: At the course of prices has been as follows: At the beginning of the year the nominal card was 2¢, though Iron was selling at 1.70¢ @ 1.75¢, and in some cases below this; the best brands could not be bought lower than these figures, and some makers refused even these. The price hung at this, but with a decided stiffening in the views of sellers, until the wages question was settled in June. In July the price went to 1.90¢; in August it bounded, and on the 28th of that month the Western Iron Association advanced the card to 2.50¢: September 26 it wanced the card to 2.50¢; September 26 it was again advanced to 3¢, and January 2

The action of a reduction of the hight

> purposes, and the last two advances have been the united action of Pittsburgh and Wheeling. The course of the market has been as follows: Late in 1878 the Western Nail Association met to consider what was known as the Powell plan for a pool to regulate production, and to keep the supply proportionate to the demand. The scheme was rejected, and Nails began to go still lower. In the spring sales were go still lower. In the spring sales were made as low as \$1.75 per keg, if not lower, and, with one exception, the mills at Pitts-burgh ceased work rather than sell at the prices. The mill that continued in operalarge scale can only decide.
>
> It began to look as though the report that certain mills had determined to "freeze out" certain others was true, but they were getting cold in the process. In June the market stiffened at Pittsburgh to 18 June some of the idle Pittsburgh mills resumed, and early in July Wheeling advanced her card to \$2.10, still refusing to meet the \$2.25 of Pittsburgh. In July Pittsburgh made another advance to \$2.35, the last of August to \$2.50, and on September 6 to \$3; September 26 to \$3.40, November 8 to \$3.65, and December 20 to \$4.425. At Wheeling the changes in the card during the year were as follows. As already stated, early in the year the nominal card was \$2, though sales were made far below this. July 1, it as young to the port of the process and argue the process only decide.
>
> HOFMANN'S PROCESS FOR REFRACTORY AURIF-EROUS SILVER ORES.
>
> HOFMANN'S PROCESS FOR REFRACTORY AURIF-EROUS SILVER ORES.
>
> HOFMANN'S PROCESS FOR REFRACTORY AURIF-EROUS SILVER ORES.
>
> From a reprint of the second edition of two Green arrested on complaint of the officers of Kuestel's standard work, "Roasting of Kuestel's standard work, "Roasting of Kuestel's standard work, "Roasting of Content of the Grocers' Bank for forging an accept that Mr. Haigh's irregularities are proved that Mr. Haigh's irregularities are proved that Mr. Haigh's irregularities are proved that Mr. Haigh has been indicted by the grand jury for forgery in the third do not know. Mr. Haigh has been indicted by the grand jury for forgery in the third do not know. Mr. Haigh has been indicted by the grand jury for forgery in the third do not know. Mr. Haigh has been indicted by the grand jury for forgery in the third do not know. Mr. Haigh the seen that only a standard was follows. As already stated, early in the provest to have been seen arrested on complaint of the officers of two subjects of the Grocers' Bank for forging an acceptance and raising money thereon. It is recreated to complaint of the Grocers' Bank for forging an acceptance and raising m

Herr Krupp, of Essen, appears to be very earnestly at work to solve the dephosphorization problem in his own way. He has recently patented in Germany a modification of his method, repeatedly referred to in the columns of The Iron Age. His new process is based upon the fact that pig iron, if melted together with oxides of iron, manganese and lime in a cuprola lined with any basic material, is deprived of the greater part of its manganese, silicon, sulphur and part of its manganese, silicon, sulphur and phosphorus. The cupola is either lined with some basic or neutral material, like iron ore, some basic or neutral material, like iron ore, bauxite, magnesia, coal, slate, or any carbonaceous material. Krupp is said to prefer, however, to dispense with the lining entirely, as far as the main body of the cupola is concerned, by water-jacketing it. He suggests a number of details as likely to prove of service, but does not appear to have settled upon any specified construction. The settled upon any specified construction. The furnace can be made single or double—that is, one cupola can be placed above the other in such a manner as to deliver the melted product into a second one below it. In order to make the "washing" process as complete as possible, it is desirable to increase the hight of the melting zone as much as possible. ble by having two or more rows of tuyeres, one above the other. The pig is not decarbonized to any extent by being melted down in this manner, and it gets down to the hearth or forehearth of the furnace, as the case may be, in a fluid state. In order to prevent any decarbonization in the hearth, the latter may be lined with some carbonaceous material, or may be so constructed that the iron is separated from the slag by an automatic tap. The iron coming from the upper cupola runs into the lower one, into which fresh charges of coke and iron ore are which fresh charges of coke and iron ore are put. The cinder from the lower cupola may halso be used as the washing material for the upper furnace. Herr Krupp suggests that coke and ore might be charged mixed in the stape of briquettes, and as much less fuel is needed in the lower cupola, into which the pig is delivered in a fluid state, it can be made much narrower.

A series of trial meltings were made in an experimental furnace, about the con-

the iron containing:	reigned 1200 pounds.
Carbon 3.73 Silicon 0.47 Manganese 3.56	Phosphorus o.66
The ore used for wa	ashing held:
Oxide of iron 98.2 Oxide of mang 0.1 Lime 0.1	Gangue 0.9
The first charge, wh partially, only yielded analysis:	nich filled the furnace I iron containing by
Carbon 3.430 Silicon 0.002	Manganese 0.450 Phosphorus 0.273
The second charge ment, the furnace being	showed an improve- ng filled higher:
Carbon 3.43 Silicon 0.002	Manganese 0.350 Phosphorus 0.200
The following charactual working of the filled and the pig are whole distance under	nd ore travelled the

yielded purified pig which was found by

	result of the last charges, which was	
	Carbon 3.40	3.40
	Carbon	0.00
١,	Manganese 0.210	0.47
	Phosphorus 0.187	0.21
	001 1 1 - 1 1 1 1 1 1 - 1 - 1 - 1 4 L	

The cinder which had absorbed the great-est amount of phosphorus was found to be

	composed as							F	u	В	1	VV	28	35		L	U	u	L	16		U	U
9																							
	Protoxide of i	ron																			0	41	. 2
i	Protoxide of	mai	ng	0.1	16	86	١.					٠		0	0			0				26	. 3
	ZARUHHHHHHHH										0											7	. 3
N.	Addition																						- 4
	Magnesia													0 1						٠	 	0	-3
3	Phosphoric ac	ad.																				5	
2	Sulphur																					0	.6

The use of lime as a flux will permit a considerable reduction of the consump of ore, as the silica from the coke will of

The metal obtained by the Krupp process is suitable for working in the open-hearth furnace, and is particularly well adapted for puddling, because the absence of manganese and silicon prevents a rapid wear of the furnace bottom. Whether this modification of what is really the Bell process will secure the economy of working which the well-known English iron master failed to obtain is a question which operations on a

The Western Iron Trade.

| Partial List of Coke and Bituminous Furnaces in and out of Blast January 1, 1876, 1877, 1878, 1879 | \$2.60. September 9, again advanced to and use. | \$2.75. September 15, or in one week, to \$2.30. Whit water to extract all soluble base chlorides and some sait, of which these base chlorides. The water, if saturated with these base chlorides and some sait, of which these base chlorides and some sait, of which were to extract all soluble base chlorides. The water, if saturated with these base chlorides and some sait, of which water to extract all soluble base chlorides. The water, if saturated with these base chlorides and some sait, of which were to extract all soluble base chlorides. The water, if saturated with these base chlorides and some sait, of which water to extract all soluble base chlorides. The water, if saturated with these base chlorides. The water, if saturated with these base chlorides and some sait, of which water to extract all soluble base chlorides. The water, if saturated with these base chlorides and some sait, of which water to extract all soluble base chlorides. The water, if saturated with these base chlorides. The water for a cepted wire, thus unloading on the bridge agreed the sait, of which water to extract all soluble base chlorides. The water for acceptance with these base chlorides and some sait, of which water to extract all soluble base chlorides. The water for acceptance with thes with water, and is removed to a kiln to reduce the amount of moisture, so as to make the ore suitable for the working of the succeeding processes. We would suggest that, perhaps, for this operation ordinary centrifugals, such as those used in sugar refineries, might prove of value. The desilvered ore, which still contains the bulk of the ore, is then treated with chlorine according to the Patera process, which Mr. Hof-mann appears to have improved largely by alterations of details, into which the limits of our space do not permit us to enter. The gold is precipitated with sulphate of iron from the solution obtained by extraction with water, the precious metal being very fine, varying from 970 to 997 thousandths. We have referred at some length to Mr. Hofmann's method, because it shows what rotmann's method, because it shows what excellent results may be obtained by clever modification of known processes. It furnishes an example of how a thorough knowledge of the chemical principles underlying their action enables metallurgists to adapt themselves to varying circumstances

THE THOMAS PROCESS IN GERMANY

M. Paul Trasenter, a prominent Belgian metallurgist, gives some data on the experi-ments made in Germany with the Thomas process, in a review of its recent progress published in the Revue Universelle des Mines. According to the information received by him, it appears that four of the five convertars at Hoerde are working with a basic lin-ing, while the fifth is being prepared for it also, excellent results having been obtained with white highly-phosphoric pig. The mix-ture used is two-thirds of Hoerde mill pig and one-third Ilsede pig, the metal holding only 0.4 per cent. of silicon and 2.5 per cent. of phosphorus. The latter, it is claimed, generates the necessary heat during the conversion, while the low amount of silicon conversion, while the low amount of silicon has made it possible to cut down the quantity of basic material added to 15 per cent., and to shorten the after-blow period considerably. The cinder, it is claimed, is basic almost from the outstart, while the quantity of spiegel used is not greater than with pure pig. The waste, it is true, is 2 per cent. greater than formerly. A bottom will outlast 14 blows, while the charge of the converters and the number of blows have not decreased. A steel works contracting for pig recently specified a minimum of 2 per cent. of phosphorus, I per cent. of silicon and 0.2 per cent. of sulphur. M. Trasenter considered the sulphur question an important orie, because pig low in silicon and low in sulphur can only be phur question an important one, because pig-low in silicon and low in sulphur can only be-obtained with manganiferous ores. He says that 0.3 per cent. of sulphur can be tolerated if the Thomas process may be considered the solution of the great steel problem from a theoretical and practical, as well as a com-mercial, point of view. We may add that the Angleur steel works have been quite successful in converting a mixture comsuccessful in converting a mixture composed principally of Luxemburg pig. Another account of the Hoerde experiments, which it is claimed comes from Herr Massenez, the superintendent of the works, gives the following analyses of pig No. 1 and steel No. 2:

	No.	1.	No). 2.
Carbon	0.06	1.04	0.24	0.28
Phosphorus Sulphur	0.16	0.27	0.005	0.067
Silicon	0.45	1.08	0.000	0.000
Manganese	1.04	1.37	0.31	0.40

of ore, as the silica from the coke will combine with it instead of attacking the ore. It is suggested that the liquid iron from the blast furnace might be made to pass through a furnace filled with a mixture of ore and coke, and be thus purified.

The metal obtained by the Krupp process is suitable for working in the open-hearth furnace, and is particularly well adapted for puddling, because the absence of manganese and silicon prevents a rapid wear of Thomas process at Hoerde. Thomas process at Hoerde.

J. Lloyd Haigh's Irregularities.

usually done, but from below the filter bottom, which, by means of a slight pressure, is forced to ascend through the ore to the top of the vat. In this way the concentrated solution accumulates above the ore, and in diluting the same by a stream of water and permitting the solution to flow out through the filter bottom, the chleride of silver is precipitated on and through the ore, which is then extracted from the balance of the silver. This operation affects the fineness of the bullion somewhat if there is a considerable amount of lead in the ore, but not materially. The bullion of Colorado No. 2 has by this process a fineness of 957. The silver is then extracted in the usual manner, by the Kipp process, by leaching the is a considerable amount of lead in its a considerable amount of lead in but not materially. The bullion of Colorado No. 2 has by this process a fineness of 957. The silver is then extracted in the usual manner, by the Kipp process, by leaching the ore with a solution of hyposulphite of line, and precipitating the silver with polysulphide of calcium. The hyposulphite dissolves more or less gold, so that the bullion of Colorado No. 2 contains from two to ten thought that had found its way into the cables. These calculations were based upon the amount of calculations were based upon the amount of activated in the function of the discarded load. An employed the dis cepted wire already used, and the time of the deliveries, and, taking the extreme figures of his calculations, Col. Paine concluded that, to supply the strength of which the cables had been robbed, it would be necessary to add about 50 tons to the original quantity of wire introduced into the cables. He calculated that by increasing the standard of strength in this extra amount the loss of strength caused by the defective wire would be more than made up. The amount of wire added was not, however, the same as the amount of defective wire furnished. This defective wire amounted to about 150 tons. As soon as the fraud was discovered all of the wire in hand at the bridge was tested, and about

in hand at the bridge was tested, and about 25 tons were rejected. This Mr. Haigh was forced to take back at his cost.

"The trustees, who were fully informed of the engineer's discoveries, were highly indignant. Some were in favor of exposing Mr. Haigh then, and others advocated refusing to pay him any money, thus forcing him to sue and prove that he had fulfilled his contract. The proceedings of the Board were all kept secret. A reporter for the Sun learned at the time that defective wire had been palmed off on the bridge, but as the engineers were reticent, and Mr. Haigh was full of smiles and plausible excuses, in was full of smiles and plausible excuses, in which he alleged that a mistake had been made by some subordinates which he had promptly corrected, the facts were not sat-isfactorily obtained. Mr. Haigh was called before the Board, and he talked about caring more for his honor in the imputations of fraud than about any money involved, and expressed anxiety lest the gentlemen com-posing the Board should form a poor opinion

posing the Board should form a poor opinion of him. One trustee, wearied by his talk, said: 'Well, sir, do you want to know what we think of you?'"

"' I do, indeed,' said Mr. Haigh. 'That's what I am anxious about.'

"' Well, sir,' was the reply, 'we think you are a d—d rascal.'

"' Well,' said Mr. Haigh, wholly unabashed, 'do you know that is what I was afraid of—in fact, the only thing I was afraid of? Gentlemen, I am very sorry.'

"Mr. Haigh was at length compelled to furnish 50,000 pounds of wire free of charge, to take back 50,000 pounds of inferior wire

to take back 50,000 pounds of inferior wire which he had delivered at the yard, and to furnish 50,000 pounds more in its place in addition to that furnished under the con-tract, and for this last-mentioned amount he was paid the contract price. His ac count finally stood as follows:

Wire received to Sept. r, 1878.
Wire received during September.
Wire rejected.
Amount of wire deducted in settlement.
Total amount of wire paid for.

money. Mr. Haigh's profit by the trick of substituting poor wire was much diminished after the compromise settlement made by the trustees. The whole amount of wire called for under the contract was 6,800,000 pounds, and as 6,900,844 pounds were required to complete the cables after the disquired to complete the cables after the discovery of the fraud, there were only 100,000 pounds extra needed, of which he practically gave 50,000 pounds to the bridge, being paid about \$4,350 for the other 50,000 pounds. Even if he palmed off 150 tons, it is said, and all of this got into the cable, he did not make \$20,000; and from this estimate must be deducted the loss occasioned by the increased rejections."

mate must be deducted the loss occasioned by the increased rejections."

We were unable, in conversation with a gentleman intimately acquainted with so much of Mr. Haigh's business as related to the steel wire contracts of the Brooklyn Bridge, referred to in the above, to obtain any information throwing light upon the alleged irregularities. It appears certain that only a small amount of wire was actually rejected by the engineers of the bridge ally rejected by the engineers of the bridge, who subjected the material to severe tests. The records of these tests show that, as regards tensile strength, the wire delivered was on an average 25 per cent. stronger than the requirements of the specifications called for. The coiling test, it is true, was called for. The coiling test, it is true, was a more difficult one to comply with, and it is claimed that the manner in which it was often applied was such that it unfairly taxed

Special Notices.

FOR SALE.

The "Irondale" Hot Blast Machinists' Tools Charcoal Furnace.

Situated at Irondale, in Washington County, Mo., I'nmediately on the line of the St. L., Iron Mt. & Southern Railway, about 70 miles from St. Louis. Stack 38 feet high, 9½ feet Bosh, with Engine, Boilers and Blast Cylinders of ample capacity, and two Hot Blast Stoves. All in condition to put in blast in a short time, at small expense. Said furnace, being only ten miles by rail from Iron Mountain, has been run almost exclusively on Iron Mt. ores, and its product has always commanded the very highest prices in the Pittsburgh and Western markets. The sale will include 10,500 acres of land, about 4700 of which is well timbered, and an unlimited supply of good charcoal can be delivered at the furnace by rail at low prices. About 350 acres of the land is inclosed with substantial fencing, and is mostly well set in timothy and blue grass, and will afford ample forage for all the live stock necessary for the use of the works. There is also an abundant supply of water for stock and furnace use from never-failing springs and streams. The property is equipped with all necessary buildings, including Coal Houses, Shops, Barns, Dwellings and Storehouse, all in good order for immediate use. For further particulars, including price and terms, address.

E. HARRISON & CO., No. 941 North Second St., St. Louis.

For Sale,

THE ROUGH AND READY HOT BLAST CHARCOAL FURNACE

situated in one of the healthiest regions of Tennessee, with all its modern improvements, including a 30 horse-power engine, and two 40 feet boilers. The turnace is in close perximality to inexhaustible supplies of rich brown hematite ore and Emestone, and the rail and river shipping facilities are excellent. Iron can be manufactured for not exceeding \$18.00 per ton, and put into market within 44 hours. Furnace can be put into blast without much expense for repairs. Included in the property are 9000 acres of fine timber land, (including 1500 acres which are improved and under cultivation) a Saw and Grist mill with a 12 horse-power engine flue boiler, Carpenter and Blacksmith shops, Stables and Cribs, Coal, Engine, Cinder, Casting, Tool, Store and Ware, and about 60 Dwelling Houses. It is the wish of the undersigned to sell only the whole of this property, which can be bought on reasonable and fiberal terms. For further particulars

D. THEOBALD, Youngstown, Ohio. A. GUCKENHEIMER & BRO.
93 First Avenue, Pittsburg, Pa

For Sale,

A ROLLING MILL, located convenient to Pitts burgh, with facilities for river and railroad trans portation. The property consists of 28 acres of portation. The property consists of 28 acres of land, with the necessary buildings, dwellings for workmen, two heating furnaces, eight puddling furnaces, muck train, 16-inch train, 26-inch train, and all the necessary machinery; all in good order, the mill being now in operation. There is a coal shaft on the property with the privilege of 148 acres of coal, and coal is run direct from mouth of shaft to the furnaces.

For further information address

Lock Box 109, Pitisburgh, Pa.

DON'T BUY

MACHINERY

Of any kind

UNTIL YOU WRITE TO US

for our List No. 20, containing full description, h prices, of over soos New and Second-Hand Machines, such as

MACHINE TOOLS, BLACKSMITH TOOLS,

WOODWORKING MACHINERY. STATIONARY AND HORIZONTAL ENGINES AND BOILERS, PORTABLE ENGINES, HOISTING ENGINES, CAR MACHINERY. WATER WHEELS. COTTON AND

WOOLEN MACHINERY, SAWS. STEAM PUMPS, &c., &c.

We offer the largest collection ever in the hands

of ONE FIRM before, and at PRICES FAR BELOW THEIR TRUE VALUE

Enclose stamp and state fully just what Machine or Machines you are in want of. Address

S. C. FORSAITH & CO.

MACHINISTS.

AND GENERAL MACHINE DEALERS,

MANCHESTER, N. H.

JOHN E. SWAN & BROTHERS. IRON MERCHANTS,

Glasgow and Middlesbrough,

Exporters of all brands of Scotch & English Pig Iron.

e. f. i. to America and f. o. b. British ports.

Old Iron Rails, Puddled Bars AND MANUFACTURED IRON.

Sanderson Bros Steel Co.

Special Notices.

SECOND-HAND

Wheeler, nearly new One 21 in. x 4 ft. Wood, Lighte & Co.
One 22 in. x 4 ft. Wheeler, new.
One 22 in. x 5 ft. Wheeler, new.
One 32 in. x 15 ft. Very heavy.
One 32 in. x 21 ft. for shafting. Wh'ler.
Three 32 in. x 21 ft. for shafting. Wh'ler.
Three 32 in. x 21 ft. for shafting. Wh'ler.
One 32 in. x 5 ft. Wheeler, new.
One 33 in. x 5 ft. Wheeler, new.
One 34 in. x 8 ft. Yh. x 2. 8. Eg. Co.
One 35 in. x 15 ft. X 2. 8. Eg. Co.
One 36 in. x 15 ft. X 2. 8. Eg. Co.
One 37 in. x 5 ft. Yh. x 2. 8. Eg. Co.
One 38 in. x 5 ft. Yh. x 2. 8. Eg. Co.
One 39 in. x 5 ft. Yh. x 2. 8. Eg. Co.
One 39 in. x 5 ft. Yh. x 2. 8. Eg. Co.
One 39 in. x 5 ft. Yh. x 2. 8. Eg. Co.
One 39 in. x 5 ft. Yh. x 2. 8. Eg. Co.
One 39 in. x 5 ft. Yh. x 2. 8. Eg. Co.
One 39 in. x 5 ft. Yh. x 2. 8. Eg. Co.
One 39 in. x 5 ft. Yh. x 2. 8. Eg. Co.
One 39 in. x 5 ft. Yh. x 2. 8. Eg. Co.
One 40 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x 10 ft. Yh. x 2. 8. Eg. Co.
One 60 in. x

E. P. BULLARD, 14 Dey st., New York

PRIVATE SALE OF A VALUABLE

Rolling Mill Property.

The undersigned offer at private sale that certain property known as the "Codorus Steel Works," formerly the property of the York County Iron Company, situated on the Northern Central Kallway and the Frederick Division of the Pennsylvania Railroad, at York, Pa. The tract contains about seven acres of ground, with a stream of water passing the same, and on which is erected a frame Iron roof Rolling Mill Building, about to x zo feet.

The Machinery consists in part of the following, to wit:

eam Engine, 15 H. P., with two pairs of Shears. Eam Engine, about 40 H. P., with two Blowing

r steam angine, about 190 H. F., with Duplicate Cylinders.

1 Steam Engine, about 190 H. P., with Duplicate Cylinder.

1 Fuddling and Heating Furnaces.

1 Boilers. Steam Hammer.

1 Train Role for Merchant Iron.

1 Train Mote the Community of the Cylinder Cylinder.

1 Train Hotel Trains for T-Rails.

1 Crusher, Funch, Sawa, Tools, &c.

The above property will be sold at a bargain. For further information apply to the

FARMERS' FIRE INSURANCE CO., York, Pennsylvania.

ELIZABETHPORT ROLLING MILL, Elizabethport, N. J.,

Common and Refined

BAR IRON

Fish Plates, Spikes, &c.

Address.

DANIEL W. RICHARDS & CO.,

Importers of and Dealers in Scrap Iron and Metals,

88 to 96 Mangin St., New York.

For Sale or Lease. FOUNDRY. NEW YORK CITY.

The plot of ground (Excelsior Works) measures 275 ft. frontage by 100 feet deep. It has a splendid Foundry, 62x765 feet, with supolase, cranes, &c. If leased, additional buildings to any extent will be erected to accommodate any kind of manufacturing business. Apply to WM J. FRYER, Jr., Ætna Iron Works, 104 Goerck Street.

FOR SALE.

Boiler 150-horse-power, engine 200-horse-power, and other smaller sizes. Machinery for rolling steel tires complete. Machinery for making see with the greatest economy. All sizes built at short notice. Boilers built to order warranted the most Apply or address

LESLIE, Manufacturer,
Railroad Avenue, Jersey City.

DESIGNS

Superior Manufacturers' Tools And Special Appliances.

ements made, ideas worked out. Drawings atterns and machines made to order in the

RICHARDS & DOLE, Springfield, Mass.

CALIFORNIAN AGENCY.

A San Francisco firm of File and Tool makers having an agent constantly traveling among the nsumers in the State and West Coast, is desir representing some first-class Eastern Houses in the manufacturing hardware trade. Address AGENCY, 248 Beale St., San Francisco, Cal.

FOR SALE,

Job Lots and Bankrupt Stocks Hardware.

A. W. WHEELER. 141 Lake St., Chicago,

N EXPERIENCED HARDWARE man, fifteen years in one large nouse in the man, fifteen years in one large nouse in the was bookkeeper, cashier, stock buyer, sales, and one of the managers. Open for any potential amoderate and reasonable salary. First city references. Address, HARD WARE, Station L, New York City,

Special Notices.

A Woodruff & Beach Beam Engine,

Low pressure, 42-inch cylinder, 84-inch stroke, with fly-wheel pulley 20 feet diameter, 36-inch face, and

Four Tubular Boilers, inches in diameter, 20 feet long, and all conctions practically as good as new.

The Geo. Place Machinery Agency, THE 121 Chambers and 103 Reade St., NEW YORK.

A. J. Steinman, Chairman, W. B. Middleton, Supt W. G. Mendinhall, Sec'y & Treas. OFFICE OF

PENN IRON COMPANY, Limited MANUFACTURERS OF

Merchant Bar Iron, Hammered and Rolled Axles, Car Forgings, Bridge Work, Fish Joints, Bolts, R. R. Spikes, Bolt Ends, &c., &c., LANCASTER, PA.

WANTED.

A good second-hand Engine, 16 or 17 inch diameter cylinder, short stroke, to run about 200 revolutions per minute; suitable to drive a train of small rolls. FOR SALE.

One large Flaner, 25 ft. long, 5 ft. square, built very heavy, in first class condition. Also, one Boring Mill, one large Slotter, one Shaper, three Drill Presses, one small Lathe, lot of Vises, one Steam Hammer for making blooms, lot of Wood-Working Machinery for making patterns, Shafting and Pulleys; also, large lot of Flacks and Foundry Fittings, for doing light and heavy work, and one large Cupola and one large Foundry Crane, all in good condition and for sale cheap. Address PENN IRON CO., Lustren, Lancaster, Penn.

Bargains in Hardware.

Will sell for spot Cash. 800 doz. Porcelain Japanned Door Knobs, at \$1 25

dor.
Job lot of Finishing Nails, in kegs, at \$3.50 rates.
500 dor. Cuspadores, at \$1.75 @ \$2.50 per dor.
500 gro. Stove Polish, at \$1.25 per gro.

Lot of Britannia Tea and Table Spoons, at 60&10

discount.

Lot of Flat Bastard Flies, 1st quality, at 40\$10 dis. 2500 dos. Cabinet Locks, at 50 per cent. discount.

Large stock R. & E. Bronze Door Knobs, at \$7.50 per dos.

10,000 dos. Wrought Butts, cheap.
200 gro. Sorento Baws, at 25 cents per gro.

One hundred and fifty thousand dollars' worth of all kinds of Shelf Hardware to close out at less than market rates. This is the cheapest place in the country to buy your goods. All sales spot cash,

A. W. WHEELER, DEALER IN JOB LOTS HARDWARE, 141 Lake St., Chicago, Ill.

Full Leather, \$7.50 .-

Half Leather, \$6.50.

Pocket Edition, Full Leather, \$3.50. Discount Bolt List, \$1.50.

Discount Screw List, 50 cents.

Leigh's Discount Book, 50 cents.

BUELL LAMBERSON,

97 Chambers St.,

New York.

Hardware Business For Sale. Stock about \$15,000 (or less if preferred), all is

good order and saleable, in a small New England city (very desirable as a residence), and doing a good business. None but principals address BOX 95. Office of The Iron Age, 83 Reade Street, N. Y.

FOR SALE.

Stock of General Hardware, Store Building an good Dwelling connected. Situated in a small town, and one of the best grain markets in Ohio. Good opening for an energetic man. For particu-lars address "C," Lock Box 186, Canton, Ohio.

AGENT WANTED.

One of the largest German Wire Mills desires espectable and pushing agent, with first rate ctions in the Wire and Rope trades. WIRE AGENT.

Office of The Iron Age, 83 Reade St., New York,

Wanted to Purchase,

Iron Ore Mill, with Revolving Table. Send description and price to

S. B. LOWE, Chattanooga, Tenn

W ANTED.—A situation in the Hardware business. Have had seven years' experience. References furnished. Address P. O. Box No. 19e, Hartford, Conn.

SITUATION WANTED—By a Roll Turner of ex-perience and ability. Address: Office of The Iron Age, 83 Reade St., New York.

SCRAP IRON and Old Rais supplied for Scash, in quantities and of qualities to suit the American markets, by A. NORRINGTON & CO., 24 Great St. Helens, London, England, First-class references given,

Special Notices.

FOR SALE OR LEASE.

The Extensive Engineering Establish-

ment known as

SOUTHWARK FOUNDRY,

PHILADELPHIA.

in the machine shop, all the tools are of improved construction, driven by two lines of shatting on each floor, all operated by a large horizontal engine, driving them. through belts, in such a manner as will allow each line to be thrown out without interfering with the others.

The inver floor is commanded by cranet through the large state of the commanded by cranet through the condition, on which are small lathest and planers, and the third, on which are storage vooms. The boiler shop is fitted with power rolls, power riveter with hoist, to take a cylinder boiler to feet long. Funch and shears with carriage on track, set so that the plates can be drilled and sheared without readjustment. ornt.
On adjoining lot is a stable 18x54, which will be sold rith the property.

For further particulars, price, terms, &c., address

MERRICK & SONS,

230 South Third St.,

PHILADELPHIA.

JOHN R. WHITLEY & CO., European Representatives of First-

Class American Houses,

FIRST-CLASS AGENTS Principal Industrial and Agricultural

Cities and Centers of Europe. TERMS ON APPLICATION. Lendon, PARIS,

8 Place Vendome. Poultry, E. C. The Sherman Process Co.

9 Pemberton Square, Boston, Mass., Issue Licenses to use the Process for th Manufacture of Iron and Steel

In the Bessemer Converter, Crucible, Sieme Martin, Puddling, Blast and Cupola Furnaces. The use of this Frocess improves the quality of the product, saves fuel and labor, and does not re-quire any change in furnace or manner of working See page 17 of The Iron Age of Oct. 25th, 1877.

WE QUOTE FOR

STEEL OR IRON RAILS, STEEL TIRES Axles, Forgings, Bars, Plates, Angles, Sheets and Billets of any temper or for any purpose. Also, Steel Nail Sheets, Wire Rods, Springs, and all kinds of Steel goods. Also, Spiegeleissen, Farro-manganese and Silicious Pig Iron, f. o. b. any British port, or c. f. i. any United States port. Thirty years' experience in the Steel Trade. NIXON BROTHERS,

To Skate Manufacturers.

Newcastle-on-Tyne,

The patent right of a new and superior Roller kate will be sold or leased to well-established arties.

J. H. BOWEN.

339 Wainut st. Philadelphia.

For Sale.

Stock of hardware, stoves and implements, and store furniture, in one of the best towns in Kansas. HARDWARE,

Box 366, Salina, Kansas

ENGLAND.

Special Notices.

For Sale.

One 18-in. Muck Train, 3-high.

One Engine, 14X30.

One " 9x32. One Rail Punch and Straightener,.

One Breaking-down Train, 2-high.

Two Rail Saws and connections, all in good order, having been in use only a short time. For terms

P. O. Box 748, Pittsburgh, Pa.

J. M. BROWNSEN.

To Manufacturers. We are prepared to furnish

Recipes and Information

INDUSTRIAL PROCESSES. Address

PARK BENJAMIN'S SCIENTIFIC EXPERT OFFICE.

> - NEW YORK CITY. LEIGH'S

Discount Book.

Specially arranged for the Hardsoure and ther trades using Combination Discounts. Mailed postpaid on receipt of price.

Address EDWARD B. LEIGH,

St. Louis Elevator, St. Louis, Mo. Or either of the Publishers, viz VISON, BLAKEMAN, TAYLOR & CO., New York.

Asbestos and Chromate of Iron.

R. & T. A. ENNIS, St. Louis

Iron Ores and Manganese. The undersigned are prepared to negotiate for Specular and Magnetic Iton Ores, also Manganiferous Iron Ores and Manganese from Virginia and other Southern States.

CHAS. L. OUDESLUYS & SON,

67 Exchange place, Beltimore.

SITUATION WANTED—As Superintendent of Rolling Mill for making Bar Iron. Can give good reference as to character, ability, &c. Salary \$1500. Address SUPERINTENDENT, Office of The Iron Age, \$3 Reade St., New York.

TO MANUFACTURERS AND CAPITALISTS.

FLOWER PINS. PATENT FOR SALE.

J. H. PLUMMER.

1276 Pacific Street, Brooklyn, N. Y. For Sale.

23 in. x 48 in. CORLISS ENGINE. Can be seen running. Will be delivered latter part of this month. Also 18 in. x 43 in. Hewes & Phillips. Can be delivered at 2008. Can be delivered at once. E. P. BULLARD, 14 Dey St., New York.

TRUSTEES' SALE OF VALUABLE IRON PROFERTY.—TWO NEW CHARCOAL BLAST FURRACES, FORTY-OUR THOURARD ACRES OF VALUABLE LAND.—Fursuant-to a mortgage executed by James Woods, H. C.,
Yestman and James Woods, Jr., registered in the
Register's Office of Stewart Co., Tennessee, in book
24, pages 449 to 430, inclusive, the undersigned will sell
on the premises, for cash, on the just day of March,
1850, that very valuable from property located in
Stewart County, Tennessee. Known as Cumberland
Iron Works. Farties wishing fuller information will
please address the undersigned, care of Third National
Benk, Nashwille, Tenn.
TEMPLE O. HARRIS,
Trustees.
V. L. KIRKMAN,

ASTONISHING POWER **PUNCHING & SHEARING PRESSES.**

See our illustrated advertisement on next to last PEERLESS PUNCH AND SHEAR CO.

FOR SALE OR RENT. The Rolling Mill Property at Topeka, Kansas, knot as the Topeka Rolling Mill, for rerolling old rai Capacity about afty tons per day. Machinery most approved kind and in good order, having be ran but about six months. Farties desiring to less or buy the property can do either on favorable term For particulars address,

T. B. SWEET,
Topeka, Kansas, or
ROYAL M. BASSETT,
Birmingham, Comp.

52 Dey Street, New York City.

A-1 Steam Engine For Sale.

Horizontal, Slide Valve Engine, graduated cutoff, cylinder 24 in. x 36 in., stroke 6 in., Judson
governor, lever throttle valve, hammered iron
shaft 1s ft. by 9 in. Engine was built for owner's
own use, and no expense spared in strength and
durability and economy of fuel. Will be sold at
reasonable price. Address
P. O. Drawer 164, Buffalo, N. Y.

Bissell & Welles, Wholesale Hardware Auctioneers,

83 Chambers and 65 Reads Sts., N. Y. Sales held weekly for the trade. Consignments olicited. We refer to the leading Manufacturers

WANTED—By a man of long and practical ex-perience in the manufacture of Iron Blast Furnaces and Rolling Mills, a situation as Super-intendent. Address. Office of The Iron Ags, 83 Reade st., New York.

Office of Tax aron ago,

WANTED.—A situation as resident or traveling
saleman or bookkeeper with a reliable house
East or West, by a gentleman of ten years' experience in the Hardware and Stove busines; understands bookkeeping by double entry. Good refereness, Address

P, O. BOX 119.

Sew Hevan, Coun,

Eur solie

proi

By a Fo first-class articles, b

Special Notices.

CO... MENGIS &

BANKERS

AND

Railway Commission Merchants.

Dealers in all kinds of

Scrap, Wrought and Pig Iron, Old Rails and Car Wheels.

NEW STEEL AND IRON RAILS A The only question at the time of writing is whether the Treasury will accept the entire SPECIALTY.

We have established the above house for the purpose of doing a general Railway Commission business. We negotiate the sale of Railroads (or the controlling inter-

Mengis & Co., 43 Pine St.,

NEW YORK.

Post Office Box 134.

FOR SALE.

The entire Canadian right of Kenyon's Adjustable Chain Pump Bucket, a superfor and substantial article. Can be accurately adjusted to fit the tube, and enlarged to take up the wear, as that the pumps can be kept in good working order. United States County and in good working order. Colleges, State rights for sale. Address, THOMAS KENYOK, Patentee, Box 103, Hamilton, Ohio, U. S. A.

Wanted.

A gentleman of several years' experience on the road in Hardware specialties, would like to make an engagement with some house or manufacturer to travel, or would take a line in addition to the one now handled. Can furnish first class reference and others. ences, both present employers and others.

Address
Office of The Iron Age, 83 Reade st., New York.

Wanted.

First class Bar Mill Roller. First class Bar Mill Heater. It will be useless for any but first class work-men and entirely sober men to apply. References required. Address BAR IRON,
Office of The Iron Age, 83 Reade St., New York.

For Sale.

The Stevens fron Furnace, located at Drakesville Station, N. J., on the Del. Lackawanna & Western R. R. Ensy of access; in good location for coal and iron ore. Will be sold at a reasonable price and easy payments to a good party. For further particulars, addresse GEO. H. MOLLER, Sec'y, 24 Nassau St., New York.

FOR SALE.

50 H. P. Locomotive Boiler, good order; 35 H. P. Horisontal Tubular Boiler, refitted; 10 x 20, 11 x 15, 12 x 24 Horisontal Engines; 50 H. P. Double Engine pair 6 x 10 Engines, tink motion; 3 large Steam Fumps; 20 Engines; 12 Siphons; Crank Planer; Portable Drill, Chuck Lathe; 20 in x 20 ft. Sellers' Lathe; 36 in. Bemont Planer; 36 in. Ement Car Wheel Borer 19 in. x 7 ft. Lathe.

A. G. BROOKS & WINEBRENER, 261 N. Third street, Philadelphia.

FOR SALE.

One 3c-horse Wm. Wright Engine. One 4c-horse Yale Iron Works Engine One 4c-horse Pitkin Bro. & Co. Boiler.

WANTED. One second-hand Cupola, about 36 inches diam-Stiles & Parker Press Co., Middletown, Conn.

WANTED.

By a Foundry and Machine Shop, stocked with first-class workmen and good tools, some light articles, both in iron and wood, to manufacture. Prices moderate. Address BOX 204. West Chester, Penn.

TO MANUFACTURERS OF AND DEALERS IN LOCKS AND GENERAL HARDWARE.—
Wanted, by a young man of 12 years' experience in the Hardware and Lock trades, and 11 years with one of the largest houses in New York, a position either as salesman, stock or shipping clerk. Not arraid to work. Best city references. Salary moderate. Address LOCKS.
Care A. H. Haverland, 259 Pearl St., New York.

Trade Report.

Office of THE IRON AGE. WEDNESDAY EVENING, January 7, 1880.

A feature of interest in the financial markets since our last issue has been the Treasury purchase of bonds for the Sinking Fund. On Saturday last the Treasury issued a circular inviting proposals for \$5,000, 000 bonds, and limiting the price as fol-

Act of February 8, 1861-Sixes of 1880, at 10238. Act of March 2, 1861; July 17, 1861; and

March 3, 1863—Sixes of 1881, at 10414.
Act of July 14, 1870—Five per cents. of

Act of only 14, 1074
1881, at 1033/s.

At noon to-day proposals to sell to the Treasury were opened; the total of these was \$7,148,000; and all except \$393,000, which were offered at the Treasury limit, were below that limit. It is therefore a safe calculation that \$5,000,000 will be taken, and that the money paid for them will soon be transferred from the Treasury vaults to the reserves of the New York banks. The full amount of the gain to the banks will probably not show in next Saturday's bank statement, but the knowledge that the banks have gained the money ought to hasten the inevitable return to ease in the loan market.

offering or not.
In the money market 6 % is the ruling rate on stocks, and 4 @ 5 % is the quotation on United States bonds. There is little disposition to make time loans. Prime mer-

cantile paper is 5 @ 6 %.

The stock market, after a season of quiet, has again developed some activity, with prices strong and higher. Government bonds are unchanged. Railroad investments, bonds and shares, are in demand at advancing prices. Speculative shares are

The following is an analysis of the bank

last week:	ÞΕ
Dec. 27. Jan. 3. Comparison	B
Loans \$277,584,200 \$276,706,200 Dec. \$878,0	
Specie 48,638,200 48,282,100 Dec. 356,10	
Legal t'nd'rs 12,080,700 12,723,500 Inc. 623,8	
Tot. reserve. 60,727,900 61,005,600 Inc. 277,7	0.0
Deposits 1,2,062,200 242,087,100 Inc. 24.0	
Reserve ro-	
quired 60,515,550 60,521,775 Inc. 6,2	25
Surplus 213,350 483,825 Inc. 271,4	

The foreign trade movements at the port

Quantity. Value.

Quantit	y. Value.
Anvils 125	8000
Bruss goods	1.424
Bronzes	318
Chains and anchors	014
Copper	42,146
Cutiery 117	27,951
Gas fixtures	363
Guns114	12.100
Hardware 14	539
Iron, hoop, tons	3,032
Iron sheet, tons	
Railroad bars	
Iron ore, tous	28,976
Iron, other, tons	179,187
Metal goods	10,407
Nails	8.427
Needles	7,620
Nickel	110
Old metal	485
Platina	E-154
Plated ware	30
Percussion caps	730
Saddlery	435
Steel	41,543
Suverware	
Fin, bxs	
Tin, 5,805 slabs	
Wire	7,831
Wife 542 EXPORTS, EXCLUSIVE OF SPECIE.	7.031
For week ended January 6:	
	×60a
1878. 1879	1680.
For the week \$6,477,544 \$4,429,575	1680. \$5,906,660
For the week \$6,477,544 \$4,429,575 EXPORTS OF SPECIE. For the week ended January 2.	
For the week \$6,477,544 \$4,429,575 EXPORTS OF SPECIE. For the week ended January 2.	\$5,906,66p
For the week. \$6,477,544 \$4,429,575 EXPORTS OF SPECIE. For the week ended January 2: Total for the week. Same time in 1879.	\$5,906,66g
For the week. \$6,477,544 \$4,429,575 EXPORTS OF SPECIE. For the week ended January 2: Total for the week. Same time in 1879.	\$5,906,66g
for the week. \$6,477.54 \$4,429.575 EXPORTS OF SPECIE. For the week ended January 2: Total for the week. Same time in 1879. Government bonds at the close of	\$5,906,66g
For the week	\$5,906,666 \$3,820 143,742 Were firm
For the week \$6,477,544 \$4,479,575 EXPORTS OF SPECIE. For the week ended January 2: Total for the week. Same time in 1879 Government bonds at the close at the following quotations:	\$5,906,66¢ \$3,820 143,742 Were firm Asked.
For the week	\$5,906,666 \$3,820 \$43,742 Were firm Asked. \$102\frac{1}{2}\$
For the week \$6,477.54 \$4,479.575 Exponra or specific. For the week ended January 2: Total for the week. Same time in 1879. Government bonds at the close of the following quotations: U. S. 6's 1880 registered. U. S. 6's 1880 registered. U. S. 5's 1880 coupon.	\$5,906,666 \$3,820 143,742 were firm Asked. 1025/2 1025/2
For the week	\$5,906,66¢ \$3,820 143,742 Were firm Asked. 102 ½ 104 ½ 104 ½
For the week	\$5,905,666 \$3,820 143,742 were firm Asked. 102 % 104 % 104 %
For the week \$6,477,544 \$4,479,575 EXPORTS OF SPECIE. For the week ended January 2: Total for the week. Same time in 1879. Government bonds at the close of the following quotations: U. S. 6's 1880 registered	\$5,906,666 \$3,820 143,742 Were firm Asked. 102% 104% 104% 102%
For the week	\$5,906,666 \$3,820 143,742 were firm Asked. 102½ 104½ 104½ 104½ 102½
For the week \$6,477,544 \$4,479,575 EXPORTS OF SPECIE. For the week ended January 2: Total for the week. Same time in 1879. Government bonds at the close of the following quotations: U. S. 6's 1880 registered 102% U. S. 6's 1881 registered 104% U. S. 6's 1881 registered 104% U. S. 6's 1881 registered 104% U. S. 5's 1881 coupon 104% U. S. 5's 1881 registered 103%	\$5,906,666 \$3,820 143,742 Were firm Asked. 102 ½ 104 ½ 104 ½ 102 ½ 103 ½ 105 ½
For the week \$6,477,544 \$4,479,575 EXPORTS OF SPECIE. For the week ended January 2: Total for the week. Same time in 1879. Government bonds at the close of the following quotations: U. S. 6's 1880 registered 102% U. S. 6's 1881 registered 104% U. S. 6's 1881 registered 104% U. S. 6's 1881 registered 104% U. S. 5's 1881 coupon 104% U. S. 5's 1881 registered 103%	\$5,900,666 \$3,820 143,742 Were firm Asked. 102½ 104½ 102½ 102½ 103½ 100½ 100½
For the week	\$5,906,666 \$3,820 143,742 Were firm Asked. 1021/4 1041/4 1031/4 1001/4 1001/4 1001/4 1001/4
For the week	\$5,900,666 \$3,820 143,742 Were firm Asked. 102½ 104½ 102½ 102½ 103½ 100½ 100½
For the week	\$5,906,666 \$3,820 143,742 Were firm Asked. 1021/4 1041/4 1031/4 1001/4 1001/4 1001/4 1001/4
For the week \$6,477,544 \$4,479,575 EXPORTS OF SPECIE. For the week ended January 2: Total for the week. Same time in 1879. Government bonds at the close 1 at the following quotations: U. S. 6's 1880 registered. 102½ U. S. 6's 1880 registered. 104½ U. S. 6's 1881 registered 104½ U. S. 6's 1881 registered 104½ U. S. 5's 1881 coupon 104½ U. S. 5's 1881 coupon 104½ U. S. 5's 1881 registered 105½ U. S. 5's 1881 registered 105½ U. S. 5's 1891 coupon 105½ U. S. 5's 1891 coupon 105½ U. S. 5's 1891 registered 105½	\$5,906,666 \$3,820 143,742 Were firm Asked. 1021/4 1041/4 1031/4 1001/4 1001/4 1001/4 1001/4
For the week	\$5,906,666 \$3,820 143,742 Were firm Asked. 102,56 104,56 102,56 105,56
For the week \$6,477,544 \$4,479,575 EXPORTS OF SPECIE. For the week ended January 2: Total for the week. Same time in 1879. Government bonds at the close of the test of the following quotations: U. S. 6's 1880 registered 102% U. S. 6's 1880 registered 102% U. S. 6's 1881 registered 104% U. S. 5's 1881 coupon 104% U. S. 5's 1881 coupon 104% U. S. 5's 1881 registered 105% U. S. 5's 1891 coupon 103% U. S. 4's 1891 registered 103% U. S. 4's 1891 registered 103% U. S. 4's 1997 registered 103% U. S. Currency 6's 1895 120% U. S. Currency 6's 1895 121% U. S. Currency 6's 1897 121% U. S. Currency 6's 1898 122% U. S.	\$5,906,666 \$3,820 143,742 Were firm Asked. 102½ 104½ 104½ 105½ 100½ 100½ 100½ 100½ 100½
For the week	\$5,906,666 \$3,820 143,742 Were firm Asked. 102½ 104½ 104½ 105½ 100½ 100½ 100½ 100½ 100½
For the week	\$5,906,666 \$3,820 143,742 Were firm Asked. 102½ 104½ 104½ 105½ 100½ 100½ 100½ 100½ 100½
For the week	\$5,906,666 \$3,820 143,742 Were firm Asked. 102½ 104½ 102½ 105½
For the week	\$5,906,666 \$3,820 143,742 Were firm Asked. 102/4 104/4 103/4 105
For the week	\$5,906,666 \$3,820 143,742 Were firm Asked. 102½ 104½ 103½ 105½ 105½ 105½ 105½ 103½ 103½ 103½ 103½ 103½ 103½ 103½ 103½ 103½ 103½
For the week	\$5,906,666 \$3,820 143,742 Were firm Asked. 102½ 104½ 102½ 100½ 100½ 100½ 100½ 100½ 100½ 100

Caribou.

Col., Chicago and Indiana Central.

Clev., Col., Cin. and Indianapolis.

Chicago, St. Paul and Minn.

Chicago and Alton.

Pref.

Chesapeake and Ohjo.

Erie	X
Pref. 69 Excelsior Mining. 25 Harlem	* * * * * * * * * * * * * * * * * * *
Harlem	* * * * * * * * * * * * * * * * * * *
Fref 65	% % % % % % % % % % % % % % % % % % %
Houseton and Texas	16 16 16 16 16 16 16 16 16 16 16 16 16 1
Ind., Cincinnati and Lafayette	**************************************
Kansas and Texas 36 Keokuk and Des Moines 16 Lake Shore 90 Lake Erie and Western 26 Lake Erie and Western 27 Lake Erie and Western 27 Lake Erie and Western 28 Lake Erie and Charletta and Cincinnati Preferred 14 Metropolitan Elevated 117 Michigan Central 24 Pref 10 Morris and Essex 102 Mobile and Ohio 24 Manhattan Railway 50 Nashville and Chattanoga 80 New York Central 12 New York Central 12 New York Elevated 122 New Jersey Central 81 New Central Coal 32 Northwest 91 Pref 106 Northern Pacific 32 Northern Pacific 33 Northern Pacific 34 Northern Pacific 35 Northern Pacific 36 Northern Pacific 36 Northern Pacific 37 Northern Pacific 38 Northern Pacific 39 Northern Pacific Mail 39 Northern Pacific 39 Northern Pacific	**************************************
Keokuk and Des Moines	3/8 3/4 3/4 3/4 3/4 3/4 3/4 3/4 3/4 3/4 3/4
Lake Erie and Western. 26	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Leadville	X4 X
La Platta Louisville and Nashville Metropolitan Elevated Metropolitan Elevated Metropolitan Elevated Metropolitan Elevated Morris and Essex Mobile and Ohio 4 Manhattan Railway New York Central Northwest Pref Ohio Northern Pacific Pref Ohio and Mississippi 29 Ontario Silver Pref Se Ontario Silver Se	78 % % % Y4 % Y4 %
Marietta and Cincinnati Preferred	% %
Metropolitan Elevated	% %
Michigan Central 89	36
Morris and Essex 102	16
Manhattan Railway 50	
New York Central 1,12 New York Elevated 122,1 New Jorsey Central 81,1 New Central Coal 32 Northwest 91,1 Pref 106,5 Northern Pacific 32,2 Ohio and Mississippi 2,3 Ontario Silver 7ef 58,8 Ontario Silver 39,2 Pacific Mail 37,2 Pacific Mail 37,2 Pacific Mail 37,2 Pref 12,2 Pref 13,2 Pref 13,2 Pref 14,2 Pref 15,2 Pref 15,2 Pref 15,3 Pref 15,3 Pref 15,4 Pref	ű.
New York Elevated	1/4
New Central Coal 32 Northwest 91 Pref 96 Northern Perf 56 Ohio and Mississippi 23 Ontario Silver 79 Pacific Mail 37	12
Northwest 91 Pref	3
Northern Pacific	4
Ohio and Mississippi	
Ontario Silver	
Pacific Mail	3
Panama	×
0 1 1 11	0
Reading 71	16
Rock Island and Pacific	4
St. Louis and San Francisco 43	4
Pref 543	
Gt Dani	
Pref. 102 St. Paul and Sloux City 383 Preferred 75	6
Standard	6
Sutro Tunnel	
Wabash and Pacific	1/2
Western Union Telegraph	

GENERAL HARDWARE.

The new year has opened propitiously and we have to report the unusual spectacle ments, comes and snares, are in demand at advancing prices. Speculative shares are all higher, and it is a question whether the large speculators who have been at work to keep prices from rising will much longer be able to check the general advancing tendency, which has the support of the investing as well as speculating public. Below we give the closing quotations of active shares and Box Cars at manufacturers' prices.

Any business in our line we respectfully solicit a share of, always endeavoring to promote the interests of our customers. All orders, either by telegraph or mail, promptly attended to.

Mendis import direct from different European ports all grades of Iron, Pig, Bessemer Steel, Old Rails, &c.

We sell Locomotives, Passenger, Flat and Box Cars at manufacturers' prices.

Any business in our line we respectfully solicit a share of, always endeavoring to promote the interests of our customers. All orders, either by telegraph or mail, promptly attended to.

Mendis in prices, Speculative shares are all higher, and it is a question whether the large speculators who have been at work to keep prices from rising will much longer be able to check the general advancing tendency in values of all classes of Hardware. The amount of business done during December is stated by some of our city houses to be in excess of the business of October last, a month generally conceded to be one of the most active of the year, and the indications for a still larger business this month are favorable. As will be seen by our reports of the Iron markets of the country, the value of the interests of our customers. All orders, either by telegraph or mail, promptly attended to.

Mendis from the favorable of the same active of an active market in midwinter, occasioned in a great measure by the rising tendency in values of all classes of Hardware. The amount of business done during December is stated by some of our city houses to be in excess of the business of October last, a month generally conceded to be one of the most active o

& Hilger Hardware Company received a cablegram from Peter Wright & Sons, announcing a further advance of 1/ per cwt. on P. W. Anvils. The price here has advanced 1/4 cent per lb., and we quote regular sizes, 103/ cents, and Anvils over 250 lbs., 111 cents per lb. Hermann Boker & Co. have also advanced their "Trenton Anvils to 101/2 cents per lb.

The demand for Nails is fair for this time of New York since our last issue are shown of the year, and the market is firm at the in the following tables: advance mentioned in our last issue. A ru-The following tables:

IMPORTS.

For the week ended January 3:

1850.

1850.

1850.

1850.

1850.

1850.

1850.

Included in the imports were items of merchandise valued as follows:

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1850.

1 following telegram to The Iron Age, dated Pittsburgh, January 7, 1880: "The report 8922 Pittsburgh, January 7, 1880: "The report that Nails had advanced in Pittsburgh to five dollar card is not correct." We quote on a strong market, 10d. to 6od., 84.35, net. for lots less than 200 kegs; for 200 kegs and over, \$4.25 per keg, net.

The following manufacturers of Locks, Knobs, Escutcheons, Keys, &c., have announced, under date of 6th inst., a further advance on list of December 15, 1879, and now quote discount 331/3 per cent :
RUSSELL & ERWIN MFG. Co.,

MALLORY, WHEELER & Co., P. & F. CORBIN, READING HARDWARE CO. BRANFORD LOCK WORKS. TRENTON LOCK Co., NASHAU LOCK CO., PARKER & WHIPPLE. NORWALK LOCK CO.. NORWICH LOCK CO., JACOBUS & NIMICK MFG. Co.

In our last issue we reported an advance in the price of Locks, Knobs, &c., to discount 45 per cent., not being then aware that there was besides a 10 per cent. discount, which the makers had agreed to keep quiet. We are assured that in the present case there is nothing held back, 331/3 being the whole discount.

Landers, Frary & Clark have their Dis count Sheet No. 7 in press. The principal changes are : Steroms Fattern Mon Spring Balances Excelsior Steelyards. Family Scales....

	Sargent & Co. have advanced the price
	of Plate Hinges and Hook Hinges as fol-
	lows:
ı	No. 160, Fast Joint Plate Hinges.
	6, 8, 10 and 12 inches, per 100 lbs
	6, 8, 10 and 12 inches, per 100 lbs
i	No. 166, Hook Hinges.
	8, 10 and 12 inches, per 100 lbs
1	No. 163, Hook Hinges.
	8, 10 and 12 inches, per 100 lbs \$8.75

48% 14 inches and larger Ten per cent. discount for prompt cash,
The Underhill Edge Tool Co., Fernald & Sise, agents, have announced advances in

Nashua, N. H., Jan. 1, 1880. Owing to the continued advance in ma-terial and labor, we have changed our dis-count on Hatchets, Broad Axes, Adzes, &c.,

to 25 per cent. Chisels, Cleavers and mis- Basket Nails cellaneous goods, 20 per cent. Underhill and Amoskeag Axes, first quality, Light, \$9 per dozen, net. Double Bit Axes, \$17 per dozen, net. Bush Hooks Handled, Strapped Eye, \$10.50 per dozen.

The American Copper Rivet Association have advanced the price of Copper Rivets and Burrs to discount 25 per cent. The list remains as before. This price went into effect on the 1st inst.

On the 1st instant the manufacturers of Cabinet Locks advanced their prices to discount to per cent, from list. An extra discount of 2 per cent. for cash in 30 days is allowed. The note at 1cot of list stating the "price for any of the above kinds tinned not specified" is 8 cents per lb. on the new list.

The Millers Falls Co. have issued the fol-

lowing circular:

No. 74 CHAMBERS STREET,

NEW YORK, January 18t, 1880.

Owing to the great advance in Iron and labor, we are compelled to reduce the discount on our Vises 10 per cent., keeping the list price the same.

We shall make no more of the cheaper grades of Lester Saws, but hereafter all of these Saws will be heavily Nickel-plated, with large, solid Emery Wheels, and all other improvements which we have ever

The list price of the Lester Saw, until further notice, will be \$10; this is 50 cents less than the same grade has sold at hitherto. The \$8 Lester we shall not make

The price of Nickel-plated Rogers Saws, with large, solid emery wheels, drilling attachment, Nickel-plated blower, &c., will

Our regular Rogers Saw, with Japan fin-ish and large iron balance wheel, drilling attachment, blower, &c., we shall designate as No. 1, and list at \$3.50. The Nickel-plated Rogers Saw, listed at \$4, we shall

call Rogers No. 2.
We shall make Saws of standard quality which will never fail to give satisfaction, and shall not try to compete with lower

DOUGLASS MFG. Co., Russell & Erwin Mfg. Co., sole agents. W. A. IVES & Co., ELMIRA NOBLE MFG. Co., CONNECTICUT VALLEY MFG. Co., C. L. GRISWOLD, SNELL MFG. Co., C. E. JENNINGS & Co., FRENCH, SWIFT & Co.,

HUMPHREYSVILLE MFG. Co. Cast Steel Auger Bits.

Comme Contract Anna Contract	
16ths inch. 3 4 5 6 7 8 Per doz\$3,50 3.00 3.00 3.25 3.25 3.50	9
Per doz\$3,50 3.60 3.00 3.25 3.25 3.50 16.hs inch. 10 11 12 13 14 Per doz\$4,50 5.00 5.50 6.00 6.50 16ths inch. 16 17 18 20 22	4.00
Per doz\$4.50 5.00 5.50 6.00 6.50	7.25
	24-16
Per doz\$6.00 9.00 10.00 11.01 12.00	14.00
Quarters	32 1/2
Nut Augers.	31.30
Inch 45 56 36 16 1 Per doz\$5.50 6.50 8.00 8.50 9.50	154
Per doz. \$5.50 6.50 8.00 8.50 9.50	10.50
Inch 1¼ 1½ 1¼ 2 2¼ Per doz. \$11.50 14.00 17.00 20.00 24.00 Inch 2¼ 3 3¼ 3½ 3¼ Per doz. \$35.00 45.00 50.00 60.00	37,00
Inch 21/4 3 31/4 *31/2 31/4	4
Per doz. \$35.00 40.00 45.00 50.00 60.00	70.00
The	12.00
Inch 11/4 11/4 13/4	2
Per doz \$13.00 14.00 16.00 18.00	22.00
Quarters 13 23	41
In Sets	10.25
	10.50
Inch 1/4 1/4 1/4 1/4 2	21/4
Inch 216 2 214	27.30
Per doz\$33.00 45.00 55.00	75 00
Rafting Augers.	
Inch	2%
Inch	32.05
Per doz \$60.00 63.00 70.00	84.00
Millwright Augers.	
Inch 34 34 9-16 54 Per doz \$12.00 15.00 15.00 15.00 15.00 15.00 Per doz \$15.00 21.00 21.00 24.00	11-16
Inch 1/4 13-16 7/6 15-16	1
Per doz\$18,00 21.00 21.00 24.00	31.00
Perdoz\$26.00 30.00 36.00 38.50 42.00 45.00	48.00
Quarters28	41
Car Bits, 12-inch Twist,	-
Car Bits, 12-inch Twist. Inch 4 5 6 7 3 9 10 Per dz\$6.50 6.50 7.50 900 10.25 11.25 12.75	13.25
16ths inch 12 13 14 15 16 17 Per doz. \$15,50 16.50 17.75 18.75 20.50 24.00	18-16
Quarts	3256
Post Augers,	4.00
Inch 2 2½ 2½	2
111011	, 3

Black Lipped Long Augers same list as Nut lugers. Discount on all of the above 40 and 10 per cent. Hollow Augers, old and new pattern, The Tack Manufacturers' Association have ssued, under date of 3d inst., a revised discount sheet to apply to the Hardware Tack list of October 31, 1879, which will be found below; we also print their revised list price of Shoe Nails, &c., adopted same date, and which is subject to discount 10 per cent.

DISCOUNT SHEET Adopted by the Tack Manufacturers' Association. January 3, 1880. To apply to the Hardware list of October 31, 1879.

Swedes Iron Tinnned Tacks.. Our regular Tinned Carpet Tacks are made from Swedes Iron, always have been, and for quality and finish we ask examination and American Iron Tinned Tacks.....

Terms, cash. Goods delivered f. o. b. New York and Boston. Also, f. o. b. Boston and Albany R. B. at 80. Framingham. The above discounts subject to change without notice,

The list of October 31, 1879, above referred to, and to which this discount sheet applies, is exactly the same as hardware list of May, 1878, excepting that the price of Brush Tacks is inserted in the new list, and the note at foot of list stating the "price for

LIST OF PRICES OF SHOE NAILS, &C. Adopted by the Tack Manufacturers' Association January 3, 1880.

	Shoe	$Find \epsilon$	rs'	L_i	st.		0	. 075	600	**	0.0	lb.
American Iron		Nails,	4-8	in -8	a n.	nd	10	13	ge	ŕ.		- 8
Swedes Iron Sh	10e Na	ils										10
Charcoal "	4.6											9
Zinc Shoe Nails	i									٠	0 0	13
Zinc Shank Na	ils											17
Diamond Head	Zipe	Nails.										20
Copper and Bra	ass Sh	oe Na	ils .									40
Copper Gimp !												
			-	2-8	8		3-	8	2		4-8	in.
American Iro	n H	ungari	an	_								w

 Nails
 11
 10½
 9½

 wedes fron Hungarian Nails
 14½
 13½
 43

 do. Patent Copper Plated
 (Patented Aug. 30, 1870)
 22
 21
 20½

 wedes Iron Hungarian Nails
 (Fancy Head)
 15½
 14½
 14½
 14

 val Head Shank Nails or
 12
 22
 24
 24
 24

the Shoe Nails, 4-8 in. and shorter, 18c. per M; 5-8 in, 22c.; 6-8 in. and longer, 26.

Channel Nails.

Less 10 per cent. Miners' Tacks. 3-8 3½-8 4-8 and longer.

21c.
| Fron Gimp Nails, 2\(\frac{1}{2}\)-8 in., 5cc, per lb.; 3-8, 35c.; 3\(\frac{1}{2}\)-8, 31c.; 4-8, 25c.; 4\(\frac{1}{2}\)-8, 23c.; 5-8, 21c.; 5\(\frac{1}{2}\)-8, 21c.; 3\(\frac{1}{2}\)-8, 31c.; 5\(\frac{1}{2}\)-8, 21c.; 3\(\frac{1}{2}\)-8, 31c.; 5\(\frac{1}{2}\)-8, 21c.; 3\(\frac{1}{2}\)-8, 31c.; 5\(\frac{1}{2}\)-8, 21c. 3\(\frac{1}{2}\)-8, 21c. 3\(\frac{1} Concave Head Nails, Brass and Copper, 44c.

rsunk Head Nails, Brass and Copper, 400. ountersunk Head Nails, Brass and copper, 452.

Any of the above kinds, Tinned, not specified,
c, per ib, advance on above prices.

Terms, cash, payable in funds current in Boston
and New York. The above prices subject to
hange without previous notice.

Since our last writing the price of Iron Wire has been advanced. The new discounts will be found under the heading of "New York Wholesale Prices" on page 26.

We noticed in our last issue an advance in the price of Baeder, Adamson & Co.'s Sand Paper of 50 cents a ream on the list, the discount remaining as before. We have since received a copy of their revised list of prices issued under date of 1st instant,

1	which we print below:
-1	LIST OF PRICES.
5	Fint Paper, &c.
	Grades. Prices per ream. Flint Paper—our best, No. co to 11/2 \$4.75
0	No. 2 to 2/2 and 3 5.25
0	Star Flint Paper, all numbers
	Emery Paper, No. 00 to 1% 6.50
2	" No. 2 7.50 " No. 2]5
	No. 3 11.50
0	Emery Cloth, No. 00 to 116
	" No. 212 24.00
5	" No. 3 26.00
	Roll Extra Flint Paper, in 50 yard rolls.
	Cents per yard,
0	No. co to 11/2
	No. 2,
2	No. 2½
0	No. 31/2
	Brown, Hinman & Co., manufacturers of

have issued the following circular. Fernald & Sise, No. 100 Chambers street, are their agents in this city. Columbus, O., January 1, 1880

Gentlemen.—All quotations on "Steel Goods," verbal or written, prior to this date, are hereby withdrawn.

We now quote (subject to change without notice) on such "Steel Goods" as we are List of 1879-80, payable August 1, 1880.

We are, however, obliged to decline further orders for various kinds at presentnotably Hoes, both Planters and Field, our

production of these up to May or June being sold, except a few kinds and sizes. Discount on "Wood Goods" remain unchanged. Orders received will be promptly acknowledged and parties informed of what

kinds we cannot supply.

Soliciting your commands, which shall have our best attention, we are, Very truly, Brown, Hinman & Co.

The list of Baxter's Patent Adjustable 'S" and Diagonal Wrenches was advanced

on the 1st inst., the discount remaining as before. The new list is given below: BAXTER'S ADJUSTABLE "S" AND DIAGONAL WRENCH.
Patented December, 1868. Price List, January, 1880.

Per doz. | \$8.00 | ro inch.... | 0.88 | 12

H. L. Judd & Co., Turner & Seymour Mrg. Co., and T. C. Richards Hardware Company have made the following changes, to take ef-

Picture Earls, Flat Bond Screw and Pluted
Washer and Base

18	
Mint. T	in Page
Inch	in Base
Loose Inch	F2.90 3
Inch	\$2.90 3 1 1/4 \$4.40 crew Shutter I
Plain	1. % % % \$3.70 3.70 4. Porcelain Hea i \$2.40 to \$2.60. ne size Glass C
On san	ne size Glass C
Shutte	r Knobs, with the as Picture K Ends, without o \$3.40 per gro les, 200, per gr Brackets, No.
list t	o \$3.40 per gro
Shade	Brackets, No.
In	the discount
issue	Co., Provider of January 1
Butts	were quote
	instead of
	referred to:
Janan	Drille ned Parliamen
44	- 44
Buc	k Brothers, Millbury,
lowing	Millbury, I
	(
We	wish our friest the represe
person	st the represe is who try to selfish ends,
there	has been a re
March	has been no 1, 1872. V illiam Jessop
Our go	oods are bett
ever	before, and aining the p
the ma	ikers of first
	titors in Eng
	LBURY, Mass.
The	y inform us
	us year of 40
comme	ence the new
	f their goods th superior
have	possessed in
	entrusted to ctorily. Bey
those g	goods not ma
few ch	anges in thei Russell &
Japann	ed Wood Sci
per cer	nt. price of Carp
ons has	s been advan
figures Chalk,	white, per gro
m 44 1	blue.
White C	rayons, "
Forks	discount 40 p
former	ly; Clark's and Wrought
count f	rom list.
Russe	ell, Burdsall of revised list
	Office of Russ Post Chest
	PORT CHEST present prices
	Bolts New Phi
Machine Stove	56
Sink	**
Stove Ro	
7-16 " 1-2 " 5-8 "	Botts by weig
Terms,	days from day w York funds
able in Ne	otice.
*	lo common of

enter, change list from \$3.50 h Base, same list and dis-Thimbles, No. 51, change oss, net.
. 50 change list to \$2.40 per sheet of the New England | while at the same time it is a perfect wrench ence, R. I., published in our and will turn with rapidity nuts and bolts of all shapes and sizes, from 1/4 to 11/2 inches. st, Japanned Parliament d 50 and 10 per cent. dis-35 and 10 per cent., which e. The following are the led Cast Butts.
Dis. Per cent nt, Japanned Acorns. Steeple tips. 35&1 manufacturers of Edge Mass., have issued the fol their customers: CAUTION. iends to be on their guard sentations of unprincipled o use our good name for , making it appear that recent change in our firm. change whatever since We continue to huy and So & Sons' best cast steel. ter in every respect than we take a just pride in osition we have won as class goods, conceded not in America, but by our fully yours, gland. Very truly yours, BUCK BROTHERS, Jan. 7, 1880. that their sales for the how an increase over the per cent., and that they year with a full assort Office of the CHARLES PARKER Co., s in stock, no back orders. advantages to any they the past for filling all their care promptly and Parker's Patent Union Mills yond a slight advance in de entirely of steel, but r prices have been made Erwin Mfg. Co. quote crews discount 30 and 10 enters' Chalk and Cray nced to the following net ines quote Otsego Steel per cent. instead of 45 as Carriage Bolts 60 per Goods 55 per cent. dis-& Ward have issued the st of discounts and prices : ELL, BURDSALL & WARD, I s are as follows: Per cent, di la. Revised List. Cents per lb per cent. discount for cash the of invoice. Bills paya-s. Prices subject to change In consequence of the frequent and rapid changes in the prices of Iron, we cannot undertake to keep our customers advised of all changes which may occur. Yours truly, RUSSELL, BURDSALL' & WARD. We have received the following circulars : Romeo, Mich., Jan. 3, 1880. lows: To the Hardware Trade: We this day change our discount list on the Kidder Hanger to 40 per cent., 30 days, net, and withdraw all former quotations. Jobbers handling our goods will please make note of Terms, cash 30 days from date of invoice. KIDDER SLIDE DOOR HANGER CO. 88, o1 and o3 Cliff Street, New York, Jan. 6, 1885.

3.30

DEAR SIR: Owing to the continued advance in the price of Iron and materials of all kinds, we are compelled to advance the price of Patent Balances to discount 15 per cent. from our list of Sept. 1, 1879.
Favorite Family Scales to discount 30 per cent. All quotations heretofore made are hereby revoked. Trusting that, as heretofore, you will favor

us with your orders.
We remain, very truly yours,
John Chatillon & Sons.

NEW YORK, January 6, 1880.

DEAR SIR: Owing to the recent great advance in the price of materials of all kinds, we are compelled to advance the price of Spring Balances, both straight and circular, to 15 per cent. discount and 10 per cent. additional for prompt cash. All former quota-

tions are hereby revoked.

Trusting that, as heretofore, you will favor us with your orders, we remain, very truly yours,

John Chatillon & Sons.

CHARLES FORSCHNER. LANDERS, FRARY & CLARK.

New YORK, Jan. 1, 1880,

Notice to the Trade. - For some time past | guaranteed, and orders are not I have been contemplating an improvement in the construction of my regular and ratched Bracer, an improvement covering every ad found in my present Bracer, at the same time possessing important advantages not heretofore obtained.

from this date will discard the old patterns. There will, however, be no change whatever made in catalogue, number or in price list, as I shall make in the new Brace styles to exactly correspond with every Brace heretofore made by me, so that parties or dering by my old numbers will receive goods corresponding in numbers, quality and

finish.

I also desire to draw your especial attention to my new Adjustable Socket Bit Br.ce Wrench, and for which I am now prepared to execute orders.

This implement is as well adapted to the

se of all kinds of Bits as an ordinary Brace,

Feeling confident the improvements will create a largely increased demand for my goods and a corresponding advantage to my customers, and assuring you that your interests shall have my best attention,

I am truly yours,

Q. S. BACKUS.

New York, January 1, 1880. GENTLEMEN: The undersigned, late of the firm of E. Ketcham & Co., begs leave to inform his many patrons and friends that he has this day associated hinself with Mr. Frederick Haberman, in the manufacture and for the sale of Sheet Metal Goods, Common and Deep, Plain and Retinned Stamped, and a general assortment of Japanned and Plain Tin Wares, House Furnishing Goods, Tinners' Trimmings, &c., and solicits a continuance of your patronage, assuring you that long experience and earnest attention will enable him to execute all orders intrusted to him at lowest market prices, and with satisfactory promptness and dispatch. Thankful for past favors, I remain, respectfully yours. A. K. HACKETT

294 Pearl street. We print below a revised price list for Box and Side Coffee Mills, adopted this day by The Charles Parker Co., of Meriden, Conn., and No. 97 Chambers street, New York. The trade here quote these goods at discount 35 per cent from the new list.

97 Chambers street, New York, January 7, 1879. To the Trade.—We have this day advanced the price of our Coffee Milis and adopted the following list, viz.:

	er doz.			er doz.
Planters	\$63.00	No. 10	Side	\$11.25
No. 25 Box	15.00	No. 15	***	10.50
	17.50	No. 20	* * *****	12,00
No. 40 "	15.50	No. 30	*******	13.50
No. 45 "	18.00	Corn n	nilleach,	12.75
Parker's Pa	tent N	ational	Box Mill.	
No. 300, Small Size			per doz.	SIL.50
No. 301, Medium S	dze		Av.	13.00
No. 302, Large	16		0.0	14.00
No. 325, Double Gi	rinder	(Extra	Large Size)
per dos				
Parker's Par	tent N	ational	Side Mill.	
No. 350, Small Size,	per d	008		\$8-00
No. 360, Med. "	0.0		**********	
No. 370, Large "	6.6		*********	
Parker's Patent Co	offee M	ill and	Can Comb	ined.
No. 250, per doz				32,00

Parker's Patent	Eagle Side Mills.
No. 50per doz. \$7.00 No. 60 " 8.00 No. 70 " 10.00	No. 80per doz. \$16.0 No. 90 26.0
	od Back Mills.
Per doz. Calif'nia L'ge Size.\$23.00 No. 0	No. 2 \$7.0

		Parl	cer's.	Patent	Ea	ıg	le	B	0X	2	111	18		D.	er doz
No.	170,	Iron	Hopp	er		* 1	* *								
	IOI.			***								8.1			. Youce
No.	102,		66	****											- 9.00
No.	103,		8.6												. 8.50
No.	104.		4.6	***											
No.	175.	Briti	tanni	a Hopp	mer		8.8								. 14.00
No.	105,		66	14											13.00
No.	106,		6.0	64									2		. E2.00
No.	107.		44	8.0						x 8					EL.50
No.	108,		66	**									×		11,00
		arker	's Bo	K. Coff	88	aı	nd	8	piq	36	3	Eil	ls		
													E	e	r doz.
No.	z. Br	ittan	nia E	lopper.				6.1							\$12.00
No.		4.0													10.50
No.	3.	*6		66				× 0				6 X	8.80		9.00
Va	Tan	an H	MACKE												0.00

The manufacturers of Wood Screws advanced their prices on the 1st inst. as fol-Per cent. discount from list.

The American Screw Company have issued the following circular, showing advances in prices of some of their specialties : PROVIDENCE, January 1, 1880.

To the Hardware Trade,-Following the advance in the price of Iron, we have, in common with the other Rivet manufacturers, this day advanced our prices on Rivets and Burrs, as per quotations below.

Withdrawing and cancelling previous quo-

3	tations at variance from following, we at
	present quote on goods in stock ;
r	Dis. per cent, from List Prices.
	Iron Black, Iron Tinned, Block and Carriage
	Rivets 40
	Rivets in Bulk 20
	Burrs 20
	Philadelphia Pattern Tire Bolts, New Phila -
	delphia List
	Bay State Tire Bolts, Common List 80
	Flat Head Iron Machine Screws 65
	Round " " " 60
	Round " " 60 Flat Brass Head " 25 Round " " 22
	Taps for Machine Screws 45
1	Stove Bolts 40
- 1	Sink Bolts 40
- 1	Pointed Wires 50
Î	Tapped Nuts 25
1	Hand Rail Screws 40&10
1	Coach Screws, (by the Keg 150 lbs.) 55
-1	With special additional discounts for large
1	quantities.
1	Terms, cash 30 days. Freight prepaid to New
1	York, Boston, Philadelphia and Baltimore; and
1	on Rivets, to principal points on or east of Missis-
-[sippi River. Except on Rivets, freight is not pre-
1	paid to other cities than above mentioned, but will
1	not exceed rates from New York city. Prices not
1	guaranteed, and orders are accepted subject to

Soliciting your orders, which shall have our best attention, we remain, yours very respectfully, AMERICAN SCREW Co. respectfully, The following revised price list of Brass

to my old friends and the trade generally, Landers, Frary & Clark, and is subject to that I have reached the desired result, and discount 33½ and 10 per cent. extra for cash in 30 days.

REVISED PRICE LIST OF BRASS COCKS January 2, 1880 88888 12.50

:							.00	8								:					:		0.00	8	00	22
					****		58,00	80.00								000 00			000					77.00	72.00	2
C	10	le	190		-6		B	tary	16	100											9	3	8	0		\$12.25
-	6	0	.8	1	26		N	le	k	p)	ì												. 5			13.50
	.6	6		3	76	_	8	ily	76	MP.													.50			14.50
		è			0=		-B	m	Lis	36										۰			.5			11.00
	6	0		_	95		N	10	b	al			0.0			000				0						
				2	93		CH	HC.	n	CI			0.1	0 0	0 0		0 0		0 0	0			.0			12.50
				3	95	_	-8	u,	76	E.		0.0	2.5				0 1			0	-		.0			15.00
		6		X	85	-	-B	ra	LS	8		0.1										8	.5	0		10.50
	8			3	85	-	N	ic	k	el										0		9	. 5	0		13.00
11	0	6		X	85	-	8	ili	7€	P.												II	.5	0		14.50
															B	ra	91	u.			3	Ti.	ck	tel.		Silver.
U	T	1	00	C	ks	,	D	ro	P	I	F'e.	d	le	-	\$3	12.	OC)			8:					\$36.00
	m	17	ri	p										0	1	16.	00	0			1	18	.0	0		90,00
A	le	(30	e	ks	L.	20	C	1	P.	1	В.	8	2				1	0	Of	se.	K	3	. (Ch	de. Pat
														0	2	ю.	oc						.o			36.00
-																					-					-

25.00

44.00

 California Patent
 36.0

 Beer Cocks, 181, P. B. & Co. 84
 34.00

 182, 81de Key
 36.00

 Add for r4 in. \$18.00 | 16 in. \$22.00 | 18 in. 30.00 dox.

 issued, under date of 1st inst., a revised

price list of their Hammers, Hatchets, &c., which we print below. They say in a circular under same date: "Our best discount to the trade is 20 per cent." They also make the following announce

Office of Yerkes & Plunb, Frankford, Philadelphia, January 1, 1880. Frankford, Philadelphia, January 1, 1880. (
We have appointed Messrs. Durrie &
McCarty, No. 97 Chambers and No. 81
Reade streets, New York, sole agents for
the sale of our goods east of the Rocky
Mountains, and purpose carrying with them
a full line of our manufactures, for immediate delivery when required. They are fully
authorized at all times to sell at our lowest
and heat funtory prices and terms.

and best factory prices and terms.
YERKES & PLUMB. JANUARY 1, 1880.

3	YERKES & PLUMB'S PRICE SHEET.	1
3.	Adze Eye Nail Hammers.	ı
2 2 2 2	No. 1, per doz \$9.50 No. 2, per doz \$7.50 No. 134 '' \$5.50 No. 3, '' 6.50 Bell Face A. E. Nall Hammer,	
	No. 1, per doz\$3.50 No. 2, per doz\$7.50 No. 1/2, 8.50 No. 3, 6.50	1
	Adze Eye Farriers' Hammer, per doz\$6.50 Adze Eye Farriers' Hammer, Boston pattern,	1.
	per doz	1
ı	Fell Face Nail Hammer, Plain.]1
1	No. 2, perdoz\$5,50 No. 3, per doz\$6.00	l
1	Nail Hammer, Plain.	١,
1	No. c, per doz \$4.25 No. 3, per doz 5.75 No. 1, 4.75 No. 4, 6.50 No. 2, 5.25	0
I	Brad Hammer, per doz\$3.75 Carpet Hammer, Steel Claw, per doz3.75	8 0.9
ı	Adze Eye Riveting Hammer.	
l	No. 1, per doz\$5.75 No. 3, per doz\$7.75 No. 2, 6.75 No. 4, 8.75	0
l	Riveting Hammer.	e
	No. o, per doz\$3.25 No. 1, 3.75 No. 2, 4.25 No. 3, 4.25 No. 3, 5.00 No. 7, 8,00	C B A
l	Tinners' Paneing Hammer.	d
	No. 1, per doz\$3.75 No. 2,	
l	Engineers' Hammer,	
	No. o per doz\$8.00 No. 3, per doz 13.50 No. 1, 9.00 No. 4, 16.00 No. 2, 11.00	f
	Engineers' Hammer-Double Face.	CO
	No. o, per doz \$8.00 No. 3, per doz \$13.50 No. 4,	of
,	Coopers' Hammer,	
7	No. 1, per doz \$12.00 No. 3, per doz \$16.00 No. 2, " 13.50	

		Co	opers'	Ham	me	BF.		
No. 2,		+++8	13.50	1				
	Bla	eksn	niths' l	dand	H	amu	ner	
No. 1. No. 2,	per doz	****	\$12.00 13 50 Il Pien		-		doa	
NY								
No. 0, No. 1, No. 2,	4.6		12.00 14.00 16.00	No.	4.	6.1		
	Machini	sts'	Hamm	er-	Str	aigh	t I	Pier
No. 0, No. 1, No. 2,	per doz		\$12.00 14.00 10.00	No.	3. 3	per	doz	
	Machi	nists	' Ham	mer-	-C	rõss	Pi	en
No. 0, No. 1, No. 2,	per doz		\$12.00 44.00 19.00	No.			doz	
	Carria	ge I	roners'	Han	d]	Han	ım	m.
No. 2,	per doz		\$15.00 pping				loz	

24.0

. \$18.

Cast-Iron Shoe Hamme

Adze-Eye Nail Hammer-Vulcan Tool Co.'s. No. 1, per doz. \$3.50 No. 2, per doz. \$6,50 Nail Hammer, Plain-Vulcan Tool Co.'s. No. oc, per doz ... \$7.25 | No. 2, per doz ... No. 0, ... 7.25 | No. 3, ... No. 1, ... 7.50 | No. 4, ... Shingling Hatchet—Full Polished. \$7.25 | No. 2, per doz \$8.00 7.25 | No. 3, " 8.50 7.50 | No. 4, " 9.00 No. 1, per doz \$12.00 | No. 3, per doz. ... \$13.50, No. 2, ... 12.75 | Half Hatchet, No. 1, per doz \$7.50 No. 3, per doz \$8.50 No. 2, 8.00 Claw Hatchet. No. 1, per doz \$3.25 No. 3, per doz \$9.25 No. 2, 8.75 No. 2, per doz ... \$10.50 No. 5, per doz ... \$15.00 No. 3, ... 11.75 No. 6, ... 17.55 No. 4, ... 13.00 No. 7, ... 20.00 Lathing Hatchet. No. o, per doz \$7.25 | No. 2, per doz \$8.00 No. 1, 7.50 | No. 3, 8.50 Lathing Hatchet, Underbill's Pattern, per doz \$1,.00 Warehouse Hatchet, per doz 15.00 Hunters' Ax, No. 0, per doz 10.00 No. o, per doz ... \$12.00 | No. 1, per doz ... \$13.00 | No. 15.00 | No. 15.00 | No. 0, per doz ... \$10.00 | No. 0,

Roi 3, 22,507

Farriers' Pincers, Solid Cast Steel, per doz.
Carpenters' Adze, per doz.
Railroad Adze, per doz.

Broad Ax, Pennsylvania Pattern. Broad Ax, Western Pattern.

to 12 in. cut, pr.

doz. | Over 12 in. cut, pr.

doz. | doz |

per lb.
Coal Wedge, per lb.
Coal Sledge.
Horse Shoe Turning Sledge, per lb.
Hot Chisel, per lb.
Railroad Cold Chisel, per lb.
Hand Drilling Hammer, under 5 lbs., per lb. Drilling Hammer, California Pattern.
Under 5 lbs., Bl'k,
Polished Face... \$0.36
bls. and above,
Black, Pol. Face...30

Black, Pol. Face .30 |
Drilling Hammer, Nevada Pattern, same as above.
Blacksmiths' Sledge, Cross Pien, per lb.
Blacksmiths' Sledge, Straight Pien, per lb.
Masons' Hammer, 3 to 10 bs, per lb.
Spalling or Stone Ham., single face, per lb.
Spalling or Stone Ham., double face, per lb.
Stone Sledge, per lb.
Stone Ax, per lb.
Railroad Spike Maul.

Railroad Spike Maul. Black, Pol. Face. \$0.32 | Full Polished and Full Polished 37 | Handled Wood Choppers' Maul, per lb...... Ship, or Top Maul.

Black, Pol. Face. \$0.40 | Full Polished and Full Polished. | Handled. | Blacksmiths' Hand Hammer, Black, Polis'd The following circulars explain them-

GIRARD, PENNSYLVANIA, January 5, 1880. To the Trade.—Owing to the continued advance of iron, coal and coke we are forced to withdraw all former quotations on our Wrenches, and now quote them as fol-

Standard. Discount subject to change without notice.

Very respectfully, GIRARD WRENCH MFG. Co., LIMITED. TO THE TRADE.

New York, January 1, 1880.

Recent developments in the iron market showing unusual scarcity, uncertain supply and consequent high price, renders a further advance in the price of our Wrenches imperative.
We are, therefore, instructed to advance

Coes' Genuine, of either make, to 40 per cent. discount from list. This quotation is subject to change without notice, and is

changes to take effect from this date, and are quoted subject to change without notice. All previous quotations are hereby with-drawn and annulled. DURRIE & MCCARTY,

Agents for L. Coes & Co. Graham & Haines, Agents for A. G. Coes & Co.

The Wheeler, Madden & Clemson Manuacturing Company have issued revised disounts for their Saws, Files, &c., under date f 1st inst., which are as follows:

MIDDLETOWN, January 1, 1880. DISCOUNT TO THE TRADE FROM PRICE LIST OF FEBRUARY, 1880. Dis. per cent. Shingle "Concave Heading Saws Resawing or Siding Saw

	ACCOUNTING OF CHARLES CHARLES	
	Mill and Mulay "	
0.0	Mili and Mulay Gang Saws.	
00	Drag "	
00	PIE "	
00	Ica "	
00	Cross-Cut Saws (except Monarch)	
	One-Man Cross-Cut Saws	
20	Cross-Cut Handles	
00	Hand, Panel and Rip Saws	
	Back and Half-Back "	
	Pruning Saws (except Combination)	
	Compass "	,
OU.	Saw Blades	
00	Butcher Bow and Kitchen Saws	
	Butcher bow and kitchen saws	,
	Handy Saws	,
	Butcher Saw Blades	
0	Key-hole "	,
	Hack Saws	
	Cabinet Scrapers	
10	Mill Webs	
90	Felloe Webs	
	Turning "	
	Curier Blades	
0	Saw Mandrels	
	Band Saw Blades	
0	Hand Saw Handles	
0	Upset Punches	

The Stanley Works, New Britain, Conn. and No. 79 Chambers street, New York, 2. 8.50 have revised their discounts under date of 1st iust. We print below their complete discount sheet, the new prices appearing in heavy type:

STANLEY WORKS DISCOUNT SHEET. January 1, 1880.
Dis. per cent.
Bronzed Capped Butts, with Tips, No. 202......40 Loose Joint Butts, Steeple Tips, No. 200 210 Bronzed Loose Joint Butts, Steeple Tips, Nos. Bronzed Loose Joint Butts, Acorns, No. 216. Nos. 218, 220. 40

Nos. 226, 224, 25&5

Nos. 226, 320. 40

Nos. 237, 234. 25&5

Loose Pin Butts, Steeple Tips, No. 236. 40

No. 238. 40

Car Butts, Steeple Tips, Nos. 246, 248, Butchers' Cleaver, Improved Pattern, Ridged
Blade and Tang.

250...
Bronzed Parliament Butts, Steeple Tips, Nos.

*Bronzed Light Inside Blind Butts, Edge Holes, Nos. 336, 248, 240 356, 358, 360.... Bronzed Flush Bolts, Bronze K. and S., Nos. 362

No. 506.

Nickel-plated Loose Joint Butts, No. 508.

Car Butts, Steeple Tips, No. 510.

Loose Pin Butts, Steeple Tips,

Nickel-plated Light Loose Pin Butts, Nos. 526

572, 574, 576, 578... Nickel-plated Flush Bolts, Knobs and Slides,

*Boston Inside Blind Butts, Nos. 626, 628.... *Olive Bronzed Light Loose Joint Butts, Olive Bronsed Light Reversible Butts, Olive Bronzed Narrow Loose Pin, No. 634.

Butts, No. 656...

Inside Blind Butts, Nos.

on Finish Extra Heavy Flush Bolts, K. and Boston Finish Extra Heavy Flush Bolts, R. and S. No. 642.

Boston Finish Extra Heavy Flush Bolts, K. and S. No. 644.

Boston Finish Extra Heavy Flush Bolts, K. and S. Nos. 646. 648

Boston Finish Extra Heavy Flush Bolts, Flain Knobs, Nos. 650, 652.

Boston Finish Sunk Flush Bolts, Nos. 654, 656. 40

Olive Bronzed Barrel Bolts, Nos. 658, 650. 20

Japanned Loose Joint Butts, Steeple Tips, Nos. 750, 762. Japanned Loose Joint Butts, Steeple Tips, No. Japanned Loose Joint Butts, Steeple Tips, Nos. 703, 710 Japanned Loose Joint Car Butts, Steeple Tips, Nos. 50 Japanned Loose Joint Car Butts, Steeple Tips, 50 Japanned Loose Joint Car Butts, Steeple 11ps.
Nos. 712, 714, 716

Japanned Loose Joint Butts, Acorns, Nos. 718,
50 Japanned Loose Joint Butts, Acorns, Nos. 722. Japa ned Loose Pin Butts, Steeple Tips, No. Japanned Loose Pin Butts, Steeple T.ps. No nned Loose Pin Butts, Steeple Tips, No Japanned Lose Pin Butts, Acorns, No. 732...
Parliament Butts, Steeple Tips, No. Japanned Parliament Butts, Steeple Tips, No.

Japanned Parliament Butts, Acorns, Nos. 74 Japanned Parliament Butts, Acorus, No. 744 46 Light Loose Pin Butts, No. 748.

Joint Butts, No. 750.

Light Narrow Butts, 752.

Inside Blind Butts, No. 754.

Screws, No. 756.

*Bronzed Light inside Blind Butts, Nos. 330, 3

Bronzed Flush Bolts, Bronze K. and S., Nos. 362, 364, 366, 368...

Bronzed Flush Bolts, Plain Bronzed K. and S., Nos. 370, 372, 374, 370.

Bronzed Extra Heavy Flush Bolts, Bronze Knobs and Slides, Nos. 376, 380, 382, 384.

Bronzed Extra Heavy Flush Bolts, Bronzed Knobs and Slides, Nos. 363, 388, 390, 392...

Bronzed Sunk Flush Bolts, Nos. 394, 396, 398, 400.40

Barrel Bolts, Nos. 402, 404, 406, 408...

Barrel Bolts, Nos. 402, 404, 406, 408...

Round Neck Bolts, No, 410...

Nickel-plated Capped Butts, with Tipes, No. 500...

30

Nickel-plated Capped Butts, with Tipes, No. 500...

30

No. 502. No. 504. Loose Joint Butts, Steeple Tips,

No. 512. Nickel-plated Parliament Butts, Steeple Tips, No. 514. Nickel-plated Partiament Butta, No. 510 Light Parliament Butts, Nos. 518. Nickel-plated Light Narrow Butta, Nos. 522. *Nickel-plated Loose Pin Light Narrow Butis,

610.

Boston Finish Parliament Butts, No. 612.

Narrow Butts, No. 614.

Light No. 616.

Back Flaps, Noe. 618, 620.

Square Back Flaps, Noe.

.50 40

can only No. 1, \$35 Scotch. Iron during and the or

Specia

Scot and a la

have ac

the pres

Gartshei

prices fi done.

Rails

Ameri

inquiry fo

market w

orders, th

business.

any large

though w

being dec pany to

largely s

transactio

The tende

be still u

more impe

advancia

500 tons Su under the in gow, which tending upw \$28.50 @ \$2 \$30 ; Garta

_	
ANam	ow Butts, No. 800
* WHIL	Loose Joint Butts, No. 802 50&10
*Reve	rsible Butts, No. 80450&10
*Broa	d Butts, No. 80840&10
*Tabl	No. 810
*Insid	Flaps, Nos. 814, 816
*Pew	Door Butts, No. 818
*Reve	ersible Butts, Steaple Tips, No. 82250&10
* "	French Pattern, No. 824 49 a Light Butts, No. 826. 40&10 ment Butts, Steeple Tips, No. 823 46 Nos. 830, 832 45 t Reversible Butts, No. 834 35 Loose Joint No. 836 35 Narrow No. 836 36 Narrow No. 836 40&10 Inside Blind No. 840 35 Loose Pin, No. 840 35 Loose Pin, No. 840 36 Loose Pin, No. 840 36 Loose Pin, No. 840 36 Gelder Holes, No. 40&10 t Inside Shutter Butts, No. 848 40&10
Parlie	ment Butts, Steeple Tips, No. 82346
Y 667 Year	" Nos. 830, 832 45
*Ligh	Loose Joint "No. 83435
# 11	Narrow " No. 83840&10
* 44	Loose Pin, No. 84035
# 44	Loose Pin, No. 84435
# 66	" Edge Holes, No.
846.	Edge Holes, No. 40&10 tand Heavy Strap H'ges, Nos. 902, 923 to t. Heavy, and Extra Heavy T Hinges, 904, 907, 908 1, 904, 907, 908 1, 904, 907, 908 1, 904, 907, 908 1, 904, 907, 908 1, 908, 909 1, 908, 909 1, 908, 909 1,
*Ligh	t and Heavy Strap H'ges, Nos. 900, 902.35&10
*Ligh	t, Heavy, and Extra Heavy T Hinges,
*Long	Chest Hinges No. 91035&10
*Hing	e Hasps, Nos. 912, 91435&10
*Crat	e Hasna Nos ora ozo
*Pate	rt T Hinges, Nos. 922, 92435&10
Bulk	Sh'ter and Flask H'ges, Nos. 931, 932, 934. net
Rolle	d Plate and Rolled Raised Hinges, Nos.
940,	942
Rolle	d Plate and Raised Blind Hinges, Nos. 944,
Norw	ich Blind Hinges, Nos. 948, 950
*Japa	nned Strap and T Hinges, Nos. 952-970. 35&5 s and Staples, Nos. 972. 974. 50&10 ght "Nos. 976, 978. 50&10 s and "Nos. 980, 982, 984. 50&10 nue1 Hasps and Staples, Nos. 986, 988,
Wrou	ght "Nos. 976, 978 50&10
Hasp	s and " Nos. 980, 982, 984 50&10
Japa	hile I Hasps and Staples, Nos. 980, 980, 50%, 50%, 10
Step	Ladder Joints, No. 99210
Wash	ers, No. 994
Carp	t Hammers, No. 99840
Flush	Bolts, with Knobs and Slides, Nos. 1000,
Flush	nnet Hasps and Staples, Nos. 980, 988, 50&10 Laddér Joints, No. 992 10 ers, No. 994 6½ cts. per lb. et Hammers, No. 998 40 Bolts, with Knobs and Slides, Nos. 1008, 1004, 1006 1008, 1008, Nos. 1008, 1004, 1004, 1006 1008, Nos. 1008, 1004, 1004, 1006 1008, Nos. 1008, 1004, 1004, 1004 1008 1008, Nos. 1008, 1004, 1004 1008 1008, Nos. 1008, 1004, 1004 1008 1008, Nos. 1008, 1004, 1004 1008 1008 1008 1008 1008 1008 1008
IOI	h, 1012, 1014
EXTR	5, 101840
Flush	5, 1018
New	York City Sunk Flush Bolts, No. 102450 Flush Bolts, Polished Plates, Nos. 1026.
102	330
Sunk	Flush Bolts, Nos. 1030, 1032
Proje	eting Flush Bolts, Nos. 1036, 1040, 1042, 30&2/2
South	nern Door Bolts, Nos. 1044, 1046 20
Flat	Pail Bolts, No. 1048
Chair	1 Bolts, No. 105650
Cana	da Bolts, Nos. 1058-1076
Squa	re Bolts, Nos. 1088-1098 40&10
Roun	d and Square Neck Bolts, Nos. 1100, 110235
Bras	Flush Bolts, Polished Plates, Nos. 1026, 30 Flush Bolts, Nos. 1030, 1032
Japa	nned Shutter Bolts, Polished Bolt, No.
III	Knob, Shutter Bolts, No. 1114 12 1-2
Brass	s Knob, Shutter Bolts, No. 1114 12 1-2 and T. K. Lock, Shutter Bolts, Nos. 1116, net
III	8 net d Shutter Polts, No. 1120 15
Case	0 Shutter Folts, No. 1120
Wro	ight Iron Floor Plates for Wrought Equare
Bo	its, Nos. 1146, 1128
Sq	are Bolts, Nos. 1130, 113240X10
Cast	Iron Staples for Square Bolts, No. 1134.40&10
Coffi	n Handles, No. 120260
Lifti	n Handles, No. 1207
Japa	nned Chest Handles, "Stanley Works,"
Japa	inned Chest H'dies, "Beebs, "No. 1205. add to nned Chest H'dies, "Beebs," No. 1205. add 5 " Patent, No. 1210add 5 "Flush Drawer and Chest Handles, Nos.
	" Patent, No. 1210add 5
121	2, 1314
Bras	s Barrell Bolts, Tinned Bolt, No. 113635
Galv	"Hinge Hagns, No. 108
	Rolled Plate Hinges, No. 131060&10
	Wash Tray Hinges, No. 1312 15
	Hasps and Staples, Nos. 1316, 1318.
1320	wierd Chart Handles Weavy No. 1222 6624
CHIVE	Patent, No. 132470
	Shutter Bolts, No. 132650
	Hasps and Staples, Nos. 1316, 1316. Inized Chest Handles, Heavy, No. 1322
,	Flat Spring Boits, No. 133245
	Shutter Bolts, No. 1345
Tinne	d Strap and T-Hinges, Nos. 1338, 134050
65	Barrel "No. 1334 45 Washers, No. 1336 45 bd Strap and T-Hinges, No. 1348, 1340 50 Hinge Hasps, No. 1342 50 Crate Hinges, No. 1344 50 Hasps, Nos. 1346, 1348 50 Hasps, Nos. 1346, 1348 50 Narrow No. 1350 50 Narrow No. 1350 50 Narrow No. 1354
+6	" Hasps, Nos. 1346, 1348
80	Light Inside Blind Butts, No. 135050
14	Narrow No. 1350 50 Narrow Putts, No. 1354 50 Screws, No. 1356 50
**	Screws, No. 1356
	-
	BRITISH IRON MARKET.

BRITISH IRON MARKET.

[Special Report by Cable to The Iron Age.] London, Wednesday, Jan. 7, 1379.

Scotch Pig.-The demand is increasing and a large business has been done. Prices have advanced materially during the week, the present quotations being:

advancing. Welsh are quoted at £7. 10/ @ £8. 5/.

IRON.

American Pig.-There is considerable inquiry for Iron, and if some of the makers whose brands are in most request in this market were in a position to accept further orders, there is no doubt that some heavy transactions would be included in the week's business. As it is, we are not able to trace any large sales since our last writing, although we are aware of heavy contracts being declined simply because the company to whom it was offered were too improvement in raw material-Hematite Pig largely sold ahead. We hear rumors of transactions in Foundry Iron on the basis of transactions in Foundry Iron on the basis of \$38 for No. 1, but are unable to verify them. The tendency of prices, however, seems to be still upward, and it only needs a little more impetus to the demand to start prices.

The trace of wages. Furthermore, other features are coming forward with a more active demand. We quote at the close: Charcoal Bright, \$9 @ \$9.25; ditto Ternes, \$7.75 @ \$8.25; Coke Tin, \$7.50 @ \$7.62\frac{1}{2}; and ditto Ternes, \$7 @ \$7.25. In the present coudition of the market we can only quote nominally, viz.: Foundry No. 1, \$35 @ \$37; Foundry No. 2, \$33 @ \$35 : Grav Forge, \$33 @ \$35.

Scotch. Pig.-The demand for Scotch Iron during the week has not been active. and the only transaction that has come to our notice worthy of mention is a sale of 500 tons Summerlee to arrive. Prices here, under the influence of dispatches from Glasgow, which are all of a buoyant nature, are gow, which are all of a buoyant nature, are tending upward, and we quote the market firm at the following figures: Eglinton, \$28,50 @ \$29; Coltness, \$32; Glengaruock, \$26, all less 10 % to the trade. No. 1 Solder, \$30; Gartaherrie, \$30, and Summerlee, \$29 12¢.

@ \$30. The imports of foreign Iron during the week amount to about 2500 tons.

Rails.-We hear of sales in lots, aggre gating between 6000 and 7000 tons Steel Rails, at various prices, some said to be as high as nally. \$77 at tidewater. In Iron Rails no new business is reported, and we nominally quote English Iron Rails, \$53 @ \$55; American, @ \$58, and Steel, \$75.

Old Rails.—The market, so far at least as Old Rails are concerned, has been in a very excited condition during the week, and all sorts of fancy prices are named, and in some instances have been paid, for prime lots. We have heard of a lot of Double Heads being offered at \$40, and afterward retired from the market for a higher figure; and there are many who say they will not

Bars is, considering the season, active, and the mills all over the country are well prothe mills all over the country are well provided with orders. Store prices here are the same as quoted last week, viz.: 3.2 for spects, surprising. Mr. Frederick E. Saward Common and 3.7 for Refined Bars, but buyers of large lots could shade these figures. The quantity of foreign Bars arriving here ity of the country seems wholly inadequate per cent. Mr. R. P. Rotherwell, however, in to the demands at present made upon it. Bundles, 1810.

METALS.

Copper.-The first week of the New Year has opened with a better demand, leading to purchases of some 250,000 pounds leading to purchases of some 250,000 pounds Lake Superior at 21366 @ 21126 on the spot, and of 500,000 pounds deliverable in February, March and April at 226. Baltimore is worth nominally as much. No change has occurred in England. From the West Coast intelligence has reached us via Panama that revolutions have taken place both in Peru and Bolivia, the presidents of both these belligerent States having fled. Their successors are supposed not to be anxious to continue a disastrous struggle. There is some prospect, therefore, of the war approaching its termination speedily. The manufactures of Copper, except Rivets, The manufactures of Copper, except Rivets, are unaltered, New Sheathing being worth 28¢; Braziers and Bolts, 30¢; Rivets are

worth 25¢. Tin.-Our market remained unchanged Tin.—Our market remained unchanged until a day or two ago, when prices began to harden, as was generally anticipated, and we now quote spot Straits 21½¢@22¢; English Common, 21¢@21¼¢, and Banca, 24¢, all large lines. At the price of Straits noted several sales have been made, both on the spot and afloat. Although the stocks and the visible supply are ample, higher values are confidently looked forward to. London fluctuates between £02@£02 for values are confidently looked forward to. London fluctuates between £92 @ £93 for Straits, while Singapore has advanced to \$28 per picul. The deliveries in England and Holland last month were 1500 tons. The receipts during the past fortnight were considerable, say 13,500 slabs Straits, 2328 Ingots Australian and a small quantity of English. The stock in New York and Best Holland 2328 Ingots Australian and a small quantity of English. The stock in New York and Boston Seriol English. The stock in New York and Boston, on January I, 1879, was 700 tons, since twenthere has been a supply from the Straits of 6300 and of Straits from Lordon of 300—together, 6600 tons; of Billiton, 1000; Australian, 800; Banca, 100; and English, 1500—together, 10,000 tons of all sorts, making a total supply of 10,700 tons. The American consumption may be set down at 8000, leaving a stock on Jan. I, 1880, of 2700 tons. consumption may be set down at 8000, leaving a stock on Jan. 1, 1880, of 2700 tons.

There were afloat on Jan. 1, 1880, 1900 tons
Straits, 1000 tons Billiton, and 200 tons Straits, 1000 tons Billiton, and 200 tons Australian—together 3100 tons; the entire visible supply on Jan. 1, 1880, was consequently 5800 tons. The Straits Settlements have shipped to the United States in all 1879 122,740 piculs, against 68,731 in 1878, showing an increase last year of 54,000 piculs. There were affoat Jan. 1, 1880, from the same quarter, for this country, 32,186 piculs, or 43,000 slabs, against 24,000 on January 1, 1879. The Tin Plate market has been very strong here. On the other side it has been wild, 28/6 having been paid there for Coke Tin yesterday. The rise has been due in England both to the improvement in raw material—Hematite Pig commanding £110—and to the increase in the rate of wages. Furthermore, other

> Lead.-Lead is considerably stronger after sales of some 150 tons Common Domes tie on the spot at 53/8¢ @ 53/4, and of 2000 tons at 51/4 @ 51/4, to arrive in January, February and March. Refined is nominally worth 64. The market closes firm at the outside rates. The sales made have cleared our market of all cheap Lead. Some Span-ish and English are dropping in in the mean-The sales made have cleared time. Of the latter there are to arrive altogether some 1000 tons. The cable informs us that English Pig has advanced to £19. 5/

Spelter and Zinc .- A weak state of affairs has continued to prevail, and Western has sold in small lots at 6¢, while Silesian commands, as to brand, 6¼¢ @ 6½¢. Sheet Zinc may be quoted 8¢ @ 8¼¢, nominally.

Nickel .- A moderate demand is observable at \$1.40 for prime American.

Antimony.—Ore continues scarce in England and the tendency remains an upward one. The stock of Cookson here is quite small. We quote the metal strong at 17¢ @ 20¢.

COAL.

There has been a pretty generally expressed feeling in the trade that after New Year's there would be an increased activity. New Year's Day came and went, but it did and there are many who say they will not have to wait long before purchasers will be found willing to pay \$42. Sales on private terms, mostly to arrive, are reported that will aggregate 25,000 tons. Arrivals during the week have been large. It will be seen the week have been large. It will be seen from the foregoing that it is a difficult matter to quote the market accurately. Holders' views, as nearly as can be reported, are for T's, \$36 @ \$38; and for Double Heads, \$38 @ \$40.

Scrap.—Sales are reported of about 300 tons No. I Wrought. We quote the same from yard, \$36. Arrivals since our last writing, 2500 tons.

Manufactured Iron.—The demand for Bars is, considering the season, active, and the pairs at mines, scarcity of cars and the pages necessary. pages necessary.

computes the tonnage of Anthracite for the year 1879 at 25,665,621 tons, taking the greatest care not to "double up" any re-The quantity of foreign Bars arriving here is very large, and some of it is said to be of excellent quality, and is laid down, even at the late advance of 20/a ton in England, at less than American mills are willing to supply the same grade. There seems to be no apprehension, however, that this influx of foreign Iron will have the effect of displacing the domestic article, as the present capacity of the country seems wholly inadequate The number of Bars noted in the imports for the week ending January 6 is 41,034, and of Bundles, 1810.

In the past year, states the output of Anthracite at 27,825,000 tons. He estimates the amount of Coal which reached tide-water at 26,250,000 tons, a figure very close to that which we have already given. Even the smallest of these figures indicates

a very large overproduction.

As we have noticed, prices are nominally advanced; the Philadelphia and Reading's

	ing extensively on lar	Nails, csks , 2	ş.	
e	line trade, and are ma	king as small amounts	Hdw., csk., 1	l
U	as possible of the prej		Lockwood Arthur J.	L
	as possible of the prej	Dies des Dancies	Files, csks., 4	ı
		•	Luyties Bros.	ŧ
i	EXP	Machinery, cs., 1	ŀ	
	LAL	ORIS	Merchants' Dispatch Co	ŧ
8	Of Handware, Iron	, Machinery, Metale,	Gun caps, cs., r	1
			Meyenberg S. M.	ł
1	&c., from the Port	of New York, for the	Machinery, cs., 3	i
_	Week ending Janua	ru 6. 1880:	Milliken & Smith, Wire, bdls., 1696	ı
1		1	Moore's J. P. Sons,	1
1	Hamburg.	Ptlm., gals.430,513 30,136	Empty cartridge,	ı
	Quan. Val.	Hdw., cs 184 2,155	cases, cs., 3	ł
	Pltdware, cs 3 \$391	Glasgow.	Gun caps, cs., 6	1
2	Hdw., cs 88 1,533		Gun wads, cs., 7	ı
8	Mach, oil, bbls 35 175	Lub. oil, bbls., 202 1,368	Gun wads, cs., 7 Nevada Bank of San	
1	Ag. imp., pkgs 13 825	Ag. imp., pkgs 45 1,501	Francisco,	ŀ
8	Tinware, cs 11 366	Pumps, pkgs. 7 475	Wire rope, coils, 2	
ľ	Rifles, case I 80	Mach'y, cs 10 2,310 Nails, kegs 15 102	Noyes, Smith & Co.	
	Wringers, cs. 8 372		Gun caps, cs., 4	
	Mf. iron, pkgs 18 981	Sew. mach.,cs 3 51	Rogers Henry,	
L	Sew. mach., cs 515 7.864	Hdw., cs 28 926	Mdse., pkgs., 1	
0	Glassware, cs. 3 39	Arms, cs 67 15,390 Bells, cs 8 36s	Schuyler, Hartley &	ŀ
1	Gas fixt., cs 5 110	Y 15	Graham,"	
^	Lub, oil, bbls. 50 300		Gun caps, gun wads,	
4.	Mach'y, cs 43 3,665		&c., cs., 10	
8	Belting, cs i 375	ranes, cs i 75	Mdse., pkgs., r Sellers W. B., Jr.	
	Danish West Indies.	Cork.	Mdee plant	
7		Ptlm., gals.(28,170 44,025	Mdse., pkgs., 2 Simmons Hdw. Co.	1
	Nails, kegs 18 77		Mdee place 11	1
0	Hdw., cs 1 78	British North Amer-	Mdse., pkgs., 11 Smith A. & Sons' Carpet	6
Э	Hektogr'ph,cs 5 200 Glassware, cs. 35 230	ican Colonies.	Co.	-
8	Glassware, cs. 35 230 Mf. iron, pkgs 9 120	Mf. iron, pkgs. 21 166	Machinery, cs., 12	1
	Ptlm., gals 200 25	Dulates desidents	Stewart A. T. & Co.	7
	Boiler tubes 35 139	British Australia.	Machinery, pkgs., 11	1
		Hdw., cs 432 9,923	Tillotson L. G. & Co.	
)	Bremen.	Cutlery, cs 6 195	Gal. telegraph wire,	
2	Plm., gls 1, 124, 110 85,857	Ptlm., gals.335,600 43,820	lots, 325	3
,	Mf. iron, pkgs. 6 119	Elect. plts, cs 8 102	Thompson L. & Co.	
	Tinware, cs 4 300	Glassware, cs. 1 25	Sew. mach's, es., 15	3
	Windmills,pgs 20 260	Pumps, pkgs. 2 70	Turner P. & T.	
	Hdw., cs 44 1,205	RR matls.,pgs 100 4,000 Mach'y, cs 11 1,101	Parts of machines,	
ķ	Ag. imp., pgs. 28 1,975		CS., I	1
	Iron rolls, cs 3 350	Mf. iron, pkgs 12 336 Nails, cs 15 143	Upton, Walton & Co.	
	Dutch West Indies.	Ag. imp., pks. 29 710	Wire rope, coils, 17	7
2	Ditter Heat Zinates	Lub. oii, cs 13 102	Varney & Doe,	-
1	Mach'y, cs 2 132	Sew. mach., cs 5 125	Percussion caps,	1
3	Ptlm., gals 500 66		Western Union Tele-	
,	Dutch East Indies.	British East Indies.	graph Co.	
1		Ptlm.gls.1,277,420 151,219	Tel. cable, drums, 3	(
	Ptlm., gls299,626 36,050		Wiebusch & Hilger	
J	Amsterdam.	British West Indies.	Hdw. Co.	
8	The second secon	Hdw., cs 64 1,966	Hdw. and Cutlery,	
	Ptlm., gals. 205,000 14,350	S. w. appr.pgs 84 174	pkgs., 42	
, I	Rotterdam.	Sew. mach., cs 12 258	Wolff H. & Co.	
1		Y.m.sheath.cs to 727	Mdse., pkgs., 5	1
1	Hdw., cs 19 499	Mf. iron, pkgs. 89 1,038	Order,	6
١	Brass gds, cs. 1 140	Nails, kegs 19 180	Arms, cs., 69	E
1	Ag. imp.,pkgs 20 1,100 Lub. oil, bbls. 150 1,800	Glassware, cs. 100 1,363	Cannel coal, tons,	*
1		Tinware, cs 4 66	150	
J	Antwerp.	Pumps, pkgs 3 130	Coal, tons, 1437	E
1	Ptlm., gals.865,076 64.422	Ptim., gals2200 285 Pitdware, cs. 1 50	Guns, cs., 7	
13	The state of the s	Fildware, cs 1 50	Hdw., bales, s	(6)

Dunkirk. Quan. Val. Ptlm., gals. 188,991\$12,240 French West Indies. Ag. imp., pks. 5 74 Sew.mach.,cs 1 50 Cuba.

Liverpool.

Guns, cs..... Mf. iron,pkgs.

lescope, bxs 2 lephones, cs 11

Hull.

London.

Mach'y, cs.... Hdw., cs.... Pltdware, cs... Ag. imp.,pkgs

Cuba.

Sew. mach., cs 65
Hdw., cs ... 145
Hdw., cs ... 145
Hdw., iron, pkgs 171
Oars, bdls ... 22
Pilm., gals, .86,006
Ag, imp., pkgs 23
Belting, pkge 1
Mach. oil, pgs, 18
Cirindstones ... 30
Platedw're, cs 8
Mails, kegs ... 120
Styres ... 120
Mach ykgs 33
Nails, kegs ... 120
Mach ykgs 34
Nails, kegs ... 120
Mach ykgs 34
Nails, kegs ... 120
Styres . don.

Platedw're, cs 8 335
Mals, kegs ... 120 26
Sals, 15 1,658
RR mtls, pks, 23 7 2,607
RR mtls, pks, 23 7 2,607
I 1 120
I 1 186
I 1 186
I 22 1,200
I 3 1,664
I 7 500
Glassware, cs 10 166

Crocker Bros.
Pig, tons, 400
Drexel, Morgan & Co.
Hoop iron, bdis., 6952
Hopkins E. T.
Bar Iron, bdis., 760
Wars, 11,207
Wars, 11,207
How, Richard & Co.
Pig, tons, 800
Jackson J. H. & Co.
Bars, 207
Lee Jas. & Co.
Fig. tons, 100
Wars, 11,207
Lee Jas. & Co.
Fig. tons, 100
Forto Rico.

Jackson J. H. & Co.
Bars, 207
Lee Jas. & Co.
Pig, tons, 100

Pig, tons, 100 Crocker Bros.

Mf. iton, pkgs 7 Nails, kegs . . . 20 Ptlm., gals. . . 1318 Ag. imp.,pkgs 3 Wire, reels . . . 10 Punnys, pkgs. 14, 4 Ftlm., gals., 55,000 Irons, cs. 230 Imware, bxs. 230 Mf. iron, pkgs. 221 Mach. 01, cs. 9 Pltdware, cs. 5 Cages, cs. 2 Steel, pkgs. 120 Belting, cs. 1 Tacks, cs. 1 Tacks, cs. 1 Palma, Ptlm., gals . . . 2300 Mexico. Mexico.
Tin plate, bxs 50
Ptlm., gals. 15,000
Mach'y pkgs. 15
Trucks. . . . 6
Hdw., pkgs. 1
Coal, tons. 12
Mf. iron, pkgs 155
Pumps, pkgs. 4 371 1,965 687 47 38 United States of Co-lombia. Cartridges, cs. 13
Nails, kegs. 29
Cutlery, pkgs. 29
Cutlery, pkgs. 32
Guns. cs. 1
Iron, pkgs. 11
G8o
Guns. cs. 1
Iron, pkgs. 18
Steel, bdls. 4
Wire, reels. 10
Wire, reels. 10
Nails, bxs. 8
Hdw., pkgs. 18
Nails, bxs. 8
Hdw., pkgs. 18
Sysey, man. 18
G7
Pitdware, pgs. 7
Fysey, mach., cs. 73
Fysey, mach., cs. 74
Fysey, mach., Iron, cs..... 199 450 Cutlery, cs.... 18 620 Cisplatine Republic.

Ag. imp., pkgs 5 Glassw'e, pgs. 38 Argentine Republic. Ptlm., gals. 202,610 18,000 Ptlm., gals. 71,647 8,610 Hdw., pkgs. 4 404 Ag, imp., pgs. 96 706 Brit.ware, pgs. 3 93 Sew. mach.,cs. 22 443 Alexandria. Ptlm., gals. 238,960 27,500 Hayti. Africa.
Ptlm., ga's.454,000 54,006
Hdw., pkgs. 1 65
Ptræus.
Ptlm., gals. 103,600 12,432
Ptlm., gals. 103,600 12,432
Sew. mach., es 3

Ptlm., gals. 117,500 10,428 Hdw., cs. 33 451 Sew. mach., cs 35 2,261

IMPORTS

Of Hardware, Iron, Steel and Metals into the Port of New York, for the Week ending

ie Fort of New York	t, for the week enati
an. 6, 1880:	
Hardware.	Lundberg G.
ninwall Thos. & Son, Files, csks., 16 ter H. & Co. Hdw., csks., 3 ter, Hermann & Co. Cutlery, casks., 3 ce Wm. & Co.	Bars, 4283 Mayer Bros. & Co, Old rails, pcs, 725 Merchauts' Dispach (Pipe, coils, 7 Merrick C. S. & Co. Bar iron, bdls., 386 Morris L. W.
Chains, cks., 1 Hdw., cs., 5 ef of Bureau of Ord- nance, Tel. cable, drum, 1 spin Col. S. Empty cartridges,	Old rails, pcs., 57 Morton, Bliss & Co. Old Rails, pcs., 11 Netherland Trading Sciety, Old rails, 1964 Nevada Bank of Sc

memann W.

Mehinery, cs., 13

vin Thos, & Sons,
Chains csks., 20

Hoes, csks., 2

Spades, bdls., 2

Hdw., pkgs., 2

Nails, csks., 2

Hdw., csk., 1

ckwood Arthur J.

Files, csks., 4

aw, Aymar & Co. Pianetsco, Pig, tons, 322 McFarlane & Adams, Machinery, cs., 1 Pierson & Co. Bars, 4733 Bolts & nuts, bags Co. Machinery, cs., 2 Machinery, cs., 2
Fuller Bros.
Chains, csk., 1
Haynes, Lord & Co.
Cop. caps, cs., 1cc
Harmer, Hays & Co.
Hdw., cs., 1
Herrmann H. & Co.
Mdse., pkgs., 69
Heuermann W.
Machinery, cs., 12

Bolte & nuts, bags, 6
Sheet Iron, bdis., 132
Spikes, bags, 18
Standard Oil Co.
Punched oil bbl.
hoops, bdis., 393
Hoop iron, bdis., 393
Stroud W. L.
Sheet iron, bdis., 283
Swift H. H. & Co.
Old iron, tons, 132
Trewbridge D. & Co.
Old iron, tons, 11½
Whitney A. R.
Bars, 560
Roof. Iron, bdls., 175
Woodford W. O.
Bars, 285 Bars, 285

rder,
Band iron, bdls, 38
Bar iron, bdls, 664
Bars, 9879
Eundles, 5086
Cast iron, cs., 100
Hoop iron, bdls.
85co 8500 Old iron, tons, 159 Old rails, 2110 Old rails, kilos., 204, Old rails, pes , 14,86; Old rails, tons, 850 7-10
Old Trails, 10da, 50
Ore, tons, 345
Pig, a quantity
Pig, tons, 850
Rod iron, bdls., 245
Scrap, kilos, 446, 125
Scrap, tons, 2108
Sheet iron, bxs., 10
Sheet iron, bdls.

1714 Sheets, 142 Steel. Brown Wm.
Bundles, 266
Carey & Moon,
Bundles, 200
Jacobs E. G.
Bundles, 24
Lockwood Arthur J.
Barra 22 Mdse., pkgs., 11 nith A. & Sons' Carpet Machinery, pkgs., 11 lotson L. G. & Co. Gal. telegraph wire, lots, 325 ompson L. & Co. Sew. mach's, 68., 15 rner P. & T. Parts of machines,

Casks, 16
Naylor & Co.
Bar steel, es., 4
Sheet steel, es., 4
Sheet steel, es., 4
Steet rods, bdls.
Saxton & Seabury,
Cases, 23 Woodford W. O. Bars, 72 Bundles, 174 Cases, 21 Order, Bundles, 120 Rods, bdls., 405 Rods, coils, 656

Metals. Arkell, Tufts & Co. Tin plates, bxs., Baring 3ros. & Co. Tin plates, bxs., Tin, slabs, 643 Brown Bros. & Co. Arms, es., 69 Cannel coal, tons Coal, tons, 1,37 Guns, cs., 7 Hdw., bales, 5 Hdw., bdls., 266 Hdw., cs., 5 Iron wire, bdls., 290 Iron wire, coils, 684 Machinery, pkgs., 2 Wire net'ng, cs, 12 Brown Bros. & Co.
Tin, slabs, 6:5
Byrne Jos. & Co.
Tin plates, bxs., Coddingson T. B. & C
Tin plates, bxs., 5
Dickerson & Van Dus
Tin plates, bxs., ic
(Yel. met. sheathir
cs., 60

Iron.

Baring Bros. & Co.
Hoop iron, bdls, 27te
Bowring & Archibald,
Iron, tons, 15
Brown Bros. & Co.
Bars, 9525
Bruce & Cook,
Sheet Iron, bdls.,
1000

Coddington T. B. & Co. Sheet iron, bdls., 28

cs., 62
Heroy & Marrenner,
Tin foil, cs., 6
Netherland Indische
Handelsbank, Handelsbank,
Tin, slabs, 500
Nevada Bank of San
Francisco,
Tin, slabs, 1620
Phelps, Dodge & Co.
Lead, pigs, 312
Tin plates, bxs., 305
Tin, bales, 32
Phelps, Stokes & Co.
Tin plates, bxs., 50
Ward Jonathan,
Old brass ca.

Old brass, ca., 3 Copper, bbls., 88 Cop., ingots, 14,671 Lead, pigs, 2189 Lead ware, cs., 1 Tin, ingots, 2328 Tin pla., bxs., 16,276 Tin, slabe, 4043 OLD METALS, PAPER STOCK, &c.

The Old Metal market is dull this week, but no appreciable change in prices has oc-curred since our last writing. There is but a slight demand for Rags and Paper Stock. The purchasing prices offered by dealers for Old Metals are as follows:

Copper Bettoms.
Yellow Metal.
Brass, heavy
Brass, light
Composition, beavy. Composition, leavy
Lead, heavy
Tea Lead.
Zinc.
Pewter, No. r.
Pewter, No. z.
Wrought Iron
Light do.
Stove Plate
Machinery do.

The prices current for Rags, &c., are as

follows:
Canvas, Linen per D. 15c. @
White Cotton, New 41/2c. @
AO, 2 2020. @
white, No. 1
NO. 2
Seconds Mired Woolen
MIACU, WOODER
SOIL, GO 15 C. (2)
MIXEU Days 2 C. 05 372C.
tunny bagging 3 C, @
Julie Ducts 2 %C. (2)
Rentucky Dagging 253C. Co
Book Stock P b. 3 c. 6
ANCHORPEDE S 102C. CG 2 C.
waste tapel and straps
Kentucky Date Rope 4 C. 03
THE PARTY OF THE P
Grass Rope ' 2½c @ 2½c

PHILADELPHIA.

Office of The Iron Aye, 220 South Fourth St., (PHILADELPHIA, Jan. 6, 1880.

Pig Iron.-The market opens strong, Pig Iron.—The market opens strong, but at this writing it is almost impossible to give anything like accurate quotations. Sales have been made within the past few days at \$30 @ \$32 at furnace, for round lots of Gray Forge, but it is not likely that anything could be done to-day within \$1 to \$2 of these figures, and possibly still higher. There is not quite so much urgency in the demand for Foundry Irons, but we have heard of sales as high as \$36 at furnace, although that is probably an extreme figure. The fact is, there are no definite figures at present; everything depends on circumstanpresent; everything depends on circumstances. A regular customer wanting a lot for immediate delivery may be able to place his immediate delivery may be able to place his order at a comparatively low figure, while others requiring a large quantity for future delivery can scarcely find any one willing to name a price; or if a price is named, it is sure to be much beyond that for a smaller lot, spot delivery. The idea of still higher prices in the early future seems to have become more confirmed since the holidays, and although the advance has been too rapid to be entirely healthy, it is difficult to see how such an event could have been averted. It is not long since prices were at the opposite extreme, and the trade is only experiencing a natural reaction. This feature of encing a natural reaction. This feature of the trade was fully considered in the Review the trade was fully considered in the Review which appeared on page 15 in The Iron Age of January 1st, so that it is unnecessary to go over the ground again. Sellers are not soliciting business, but for spot lots \$37 @ \$38 is asked for No. 1 Foundry Iron, and \$33.50 @ \$35 for Gray Forge. The leading furnaces are sold close up, and are practically out of the market. Scotch Iron sold at \$32 for Eglington and \$35 for Gartsherrie. North of England Irons are also moving very freely at prices varying from \$27 to \$32. Transactions were made about the close of the year in lots of several shousand tons each; these are now being distributed in small lots at an advance of \$3 to \$5 per ton.

Muck Bars.—Quite an active business has been done since the opening of the year. First sales were at \$50, prices gradually advancing to \$55, at which figure sales were made to-day. Other sales are reported at \$53 @ \$54, so that \$53 @ \$55 may be regarded as a fair quotation at this date. arded as a fair quotation at this date.

Blooms. - Prices are again higher, and, under light offerings, the following may be reunder ight offerings, the following may be regarded as fair quotations, viz: Sunken Scrap Blooms (2464 fb), \$55 @ \$57: Northern Ore Blooms (2240 fb), \$52 @ \$54: best quality Charcoal Billets (2240 fb), for wire and steel purposes, \$55 @ \$90: Bars, \$90 @ \$92.50; Sheet Iron Blooms, cornered (2464 fb), \$80; Cold-blast Charcoal Plate Blooms, \$75 @ \$75.50; vincout Authrosity, \$67.50 \$75 @ \$77.50; run-out Anthracite, \$67.50

Structural Iron.—Business has scarcely opened yet, and we have neared or no sales of importance since the first of the year. Prices are firmer, however, and there is little doubt that there will be a still further advance at an early date. In the meanned yet, and we have heard of time, prices are nominally as follows: Channels and Tees, 4.5¢.; Beams, 4.2¢;

Plate and Tank Iron.-The demand is not specially active, but the mills are pretty well employed, and have orders to employ them for some time yet. The Plate Iron trade is about the dullest on the list, but the demand is expected to start up pretty soon. In the meantime quotations are not materially changed. The following are about market prices to-day: Tank, 4¢; C. No. 1, 4½¢; C. H. No. 1 Shell, 4½¢; Flange, 6¢; Flange Fire-box, 7¢; Best Bloom, 7½¢.

Sheet Iron.-It is impossible to give any definite quotations, as manufacturers refuse to name prices for forward delivery. For small lots, spot delivery, an advance of about 1/4 P is obtained over the quotations given in this column two weeks ago. rices are still tending upward, and there is little doubt that further advances will be ob-tained in course of a few weeks.

Bar Iron.-Since date of our last report prices have again advanced, and 3.4¢ is now an inside figure, and it is quite unlikely that orders of any amount would be entered even at that price. The mills are running to their at that price. The mins are running to their full capacity, and as manufacturers find no difficulty in placing their products from week to week, there is no desire to enter into extended contracts. Buyers are numerous, and there is no difficulty in obtaining orders at the rates quoted. There is a gen-eral feeling that a further advance will be made in course of a few weeks : meanti 3.4# @ 3.5# are the current rates to-day. Steel Rails.-It is difficult to say any-

thing in regard to the Steel Rail trade beyoud the fact that the mills are full of work and have far more orders offered than they and have far more orders offered than they can possibly accept. It is difficult to obtain definite information as to prices, but there is no doubt that \$72.50 @ \$75, at mill, is about the rate at which business can be done to-day, although we hear of higher prices in some quarters.

Iron Rails.-We have not heard of any transactions since the opening of the year, and manufacturers are very unwilling to enter orders at the moment. For immediate delivery \$60 @ \$62.50 is named for heavy sections, and for futures prices will probably have to be made subject to rates current at time of delivery. The mills are fully occupied for the time being, and the outlook is such that manufacturers have no apprension in regard to the future, except the fear of entering orders too soon.

Old Rails.-There has been an active Old Rails.—There has been an active demand for Old Rails, but offerings have been unusually light. Sales are reported at \$38 @ \$39 for spot lots, and \$40 to arrive. The market has a firm appearance, and higher prices are confidently predicted by parties likely to be well informed. The higher prices go the more difficult it is to buy. This however may be entirely legitic. buy. This, however, may be entirely legitimate, and due to exhaustion of stocks.

Scrap Iron—Has advanced in sympathy with the rest of the market, Cast commanding \$26 @ \$28, and Wrought, \$37 @ \$38.

Nails—Are firm at the advance, and sales are quite large at \$4.35 for retail lots.

PITTSBURGH.

Office of The Iron Age, 77 Fourth Avenue, Pittsburgh, Pa., Jan. 6, 1880.

Pig Iron.—The volume of business in this important article was large the past week, the reported sales aggregating about 10,000 tons, and that, too, at a further advance in prices. Buyers continue anxious to anticipate future wants, and while many of them have contracted for enough to last them from two to three months, there is no apparent abatement in the demand, and sellers, as might be expected in the present condition of the market, continue loth to make any additional contracts. Included in the sales reported were 500 tons all ore Redshort, for February delivery, at \$40, 4 short, for February delivery, at \$40, 4 mos; 1000 do., at same figure and time; 500 tons Gray Forge Neutral, at \$35, 4 mos. Cohe Iron from native ores—three lots of 500 tons each; Gray Forge at \$35, 4 mos; 300 do., at \$35, cash; 200 do. Mottled and White, at \$31, 4 mos. Small lot of Foundry at \$37, 4 mos. Anthracite—1500 tons Gray Forge, at furnace, at \$30, cash; 300 tons do. at \$35, cash, delivered here; 300 tons do. Cold-short, \$33,50, cash; 150 tons Neutral Forge at \$35, cash; several small lots of Foundry at \$32 @ \$38, cash. Standard Neutral Gray Forge is now held at \$36 @ \$37, and Redshort, all Ore, \$40, 4 mos. Bessemer.—A sale of 500 tons for Bessemer use at \$41, cash, at furnace, is now held higher The same furnace that sold the lot in question, it is said, is now asking \$45. While it is thought by some that the advance is too same furnace that sold the lot in question, it is said, is now asking \$45. While it is thought by some that the advance is too rapid to be healthy, the demand continues in excess of the supply, and while this continues to be the case prices will naturally tend upward, and it is certain furnacemen will continue to demand higher prices as long as buyers are willing to pay the adlong as buyers are willing to pay the advance. There is no telling at present when and where the upward movement will be arrested. Some predict that \$45, or even \$50, will be reached before the "boom" is

Manufactured Iron.-The chief event of the week was the meeting of the Western Iron Association, which convened in this city last Friday. The meeting was well attended, nearly all the Western points of any note being represented. The chief object of the meeting was to advance the card. While all admitted the necessity of an advance and favored it, there was a difference in opinion in rogard to the extent Those who have a good many orders booked, made some time ago when they thought the market had settled down and looked as if a reaction was not improbable, were op-posed to making too radical an advance, in view of the fact that the higher the card the greater the cost of labor, as the latter, according to the sliding scale, goes up with the former. After considerable discussion it was agreed to fix the card at 3½¢ for bars, an advance of ½¢ ¾ B., which runs the which runs the price of puddling up to \$6. While the advance was made reluctantly, it was a matter of necessity, in view of the recent enhanced cost of raw Iron, which has risen in value within the past two weeks about \$5 3? ton. Nails .- While prices remain unchanged

Nalls.—While prices remain unchanged, the market is decidedly firmer, owing to the advance in Iron, which will materially enhance the cost of production, and it is probable that orders will commence to come forward pretty freely within the next few weeks. Buyers, who were disposed to hold off after the last advance, will now begin to think about getting their orders placed, lest there should be another screw upward. We continue former quotations—\$4.25, 60 days, 2 % off for cash, and the usual abatement of 10¢ \$\mathcal{P}\$ keg on lots of 200 kegs and upward. upward.

Horse and Mule Shoes.-There has been no change in the card here as yet, but an advance may be looked for at any time, and it is doubtful whether even now an order could be placed at card rates. An advance is almost certain in view of the increased cost of production, and as the busy season is near at hand, it will no doubt be made

Railway Spikes-Have been further advanced, and we now quote at 4 7 lb, 30

Ores-Continue in active demand and Ores—Continue in active demand and hard to obtain, and prices are still tending upward. It is evident that the supply, especially of desirable qualities, is destined to be light until after the opening of navigation, which usually takes place in June. It is very certain now that the ore fields of Virginia will be opened to Pittsburgh within the control of the cont e next year or so, and efforts are now ing made to extend the Pittsburgh, surleston and West Virginia and the Pitts-

to that point, and we should not be sur-prised if work on one or the other, or both, was commenced early in the spring. It is very important to the Iron interest that Pittsburgh be placed in direct communication with the Ore fields in question, and the sooner the better.

Muck Bar .- Very little is offering, and very little to offer, as the mills are using about all they can make. In the absence of sales we quote nominally at \$58 @ \$60, cash,

Rails.—Steel Rails continue very firm and xcited; there is no abatement in the denand, and prices are still tending upward. The mill here is still refusing orders, having ontracts sufficient to absorb their product or some time to come. The Cambria Iron Company is reported as having made a sale recently of 4000 tons at \$75, cash, at mill. Old Iron Rails—None offering from the West, and consumers here are dependent on the East for supplies.

Wrought Iron Pipe—Is decidedly firmer, owing to the enhanced cost of Skelp, which has been advanced, according to the card, 1/4 % B; discount still quoted at 25 %, but a further reduction soon is not improbable. There is every indication of a big spring trade. Boiler Tubes remain unchanged, but trade. the probability is that prices on them too will be advanced soon; present discount 15 @ 20 %; Oil Well Casing and Tubing un-@ 20%; Oil Well changed, but firm.

Steel.—There is no apparent falling off in the demand for Merchant Steel. The mills are all reported very busy and prices firm at card rates. The largely-increased consumption of Iron does not appear to have curtailed that of Steel in the least.

Serap.-The market for all kinds of Scrap is firmer and prices are higher, with prospects of an increased demand. Stocks here are small. No. I Wrought Scrap, \$40 @ \$42 \$\text{P}\$ ton, net; Car Axles, \$43 @ \$45, net; Car Springs, \$40, net; Wrought Turnings, \$25; Old Car Wheels, \$35 @ \$37, gross; Cast Borings, \$16 @ \$17, gross

Coke.—The further material advance in Pig Iron has further stimulated the market for Coke. Hence, with an increasing de-mand and but few sellers, except for imme diate delivery, prices have gone still higher. We now quote at \$2.40 @ \$2.50 \$7 ton, free on cars at works, with manufacturers generally refusing to sell beyond January. The erally refusing to sell beyond January. The experience of the trade generally last year was decidedly against making any long con-

tracts.

Window Glass.—The new year opens up with the Window Glass trade in better shape than it has been for a number of years. Stocks, both in first and second hands, are very much reduced; that in the hands of Pittsburgh manufacturers never was, probably, as light as at present—warehouses are all empty, and there is every prospect of a big spring and summer trade. A meeting of the National Association takes place at Washington City within the next few days, when it is probable some action will be taken in regard to prices, which it is very certain will not be reduced.

Coal.—The river continues in excellent

Coal.—The river continues in excellent condition for running Coal, and the proba-bility is that all that is loaded and ready to nove will be sent away from here by the close of the present week. Notwithstanding the continued large shipments and the steady accumulation in the supply in the down-river markets, prices there are still maintained, although a decline, both at Cin-cinnati and Louisville, is probable.

Petroleum.-There has been no impor ant change in the situation since our last report; while prices are still maintained, the feeling is weak, and but for speculation there is reason to believe would rule considerably lower. As many of the refineries have shut down, it is evident that the consumption is on the wane, and this being the case, the visible supply must be on the in-

CHATTANOOGA.

Office of The Iron Age, Market and 8th Sts., | CHATTANOGA, Jan 5, 1880.

The holiday trade does not usually include heavy articles, and manufacturers of and dealers in metals and other things coarse and cumbersome, are apt to have a rest during this season. Trade has been fair, and all the concerns have worked straight through without the loss of a day. Markets ally for manufactured artic cited and unsteady, the tendency higher prices. The upper streams have been filled by the December rains, and great quantities of produce, iron, timber, lumber, &c., has reached market earlier than usual. The weather for the entire week has been of an April character, bright and warm and very favorable for business.

Pig Iron.—The market is very irregular, ome grades will command higher figures than our last quotations. About 7000 tons of future make for future delivery were among the sales of the week. Gray Forge has sold at \$30 @ \$31, and some lots of Foundry have brought \$34 @ \$37, on cars in this city. But these transactions, while they indicate the condition of the trade, do not justify quotations at such rates. The depushry quotations at such rates. The demand is very sharp, and the market promises to be unsettled and prices higher for some time. We continue to quote as last week: Coke and Charcoal No. I Foundry, \$30 @ \$34; No. 2, \$28 @ \$30; Gray Forge, \$28 @ \$30; White and Mottled, \$25 @ \$27; Car Wheel Metal, standard brands, \$35 @ \$45.

fair, the supply being ample for the market. We quote Brown Hematite, 50 % @ 56 % per ton, at \$2 @ \$2.75 per ton; Red Fossil, \$2 \$2.25, on cars or on wharf from flat boats.

Nails—Continue very strong, with advancing market. We quote at \$4.35 rates, and mills declining business except on daily

Manufactured Iron-Harrison in sym- Ohio

pathy with Pig. Bars, \$3.75; Railroad Spikes, \$3.90; Track Bolts, \$5; Trestle Bolts, \$5.75

Coal.-We quote run of mine at \$1.75 @ \$2 and in fair supply. The tropical winter has made a dull market for Lump, which ells at 10¢ @ 12¢ P bushel, delivered.

Coke.—The market is strong at last eek's figures. Makers are increasing their facilities to meet the demand, and an easier market may be expected by spring.

Steel and Iron Rails.-Steel Rails are nominally \$75, though there are none in the market, except they are rolled on open orders filed some weeks back. Iron Rails are strong at \$60.

BOSTON.

JANUARY 3.—The market has been quiet at the late advance, but the tendency is toward a further rise as soon as the business of 1880 is fairly under weigh. The best quotations that can be given for American Pig Iron to-day at the shipping ports are: \$35 for No. 1 X; \$33 for No. 2 X; \$31 @ \$32 for Gray Forge, and \$29 for White and Mottled. Manufactured Iron of all kinds is in active demand, with the tendency in prices decidedly upward. Copper shows no change either in manufactures or Ingot, the latter ruling steady at $21\frac{1}{3}$ @ $21\frac{1}{2}$. Antimony is in moderate demand and firm at 18 @ 19\$. Lead manifests a firmer tone, but we still quo'e 5 1/4 \$\phi\$ for large lots of Pig, and the Boston store price is 6\$\phi\$. Manufactures are firm, quoting Lead Pipe, 7½¢; Tin-Lined Pipe, 15¢; Bar Lead, 7¢; Sheet Load, 8¢; Block Tin Pipe, 40¢; all of these are subject to the usual trade or 10 % discount. Speller is quiet and steady at 6¢ @ 6½¢. Tin

CINCINNATI.

Messrs. B. L. HARPER & Co., under date Messrs. B. L. Harper & Co., under date of Jan. 5, write as follows: It now appears certain, beyond question, that the upward movement which many at the start believed short lived, and which the most sanguine did not suppose could reach present figures, has yet (after fairly doubling the prices of last summer) such elements of strength as will not only sustain the present standard of the strength as the contract of the strength as the present standard of the strength standard of the standard of the strength standard of the standard of will not only sustain the present standard of values but carry them much higher. Sellers are not as much inclined to push the advance as they were before prices afforded a good margin, but buyers realizing what is really

possible to selling rates of to-day.	No. a Ha
HOT-BLAST FOUNDRY.	No. 1 Sou
Hanging Rock C. C., No. 1	No. 2 "America Silver Gra
Strong Goke	Mill Iron No. 1 Cha No. 1 Stor and Ner No. 2 Stor and Ner
Charcoal Gray Forge. 35.00 @ 37.00 Strong Neutral Coke. 34.00 @ 36.00 Cold-Short 32.00 @ 33.00	No. 1 Miss White an Neutral
CAR WHEEL AND MALLEABLE.	(
Hanging Rock	Hanging !

BALTIMORE.

W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, Baltimore reports us the following under date of Jan 5: Owing to the continued and increased activity in the iron line, the list rules advanced, with every indication of still higher figures being reached.

ļ	Ref. Bar Iron, 1 to 6 by 36 to 1. 9 1 3 4-10 @ 3 5-10
	" 1 to 41/2 by 11/4 to 2. D 3 4-10 @ 3 5-10
	" % to s, Round
١	and Square P 10 3 4-10 @ 3 5-10
	Hoop Iron, 11/4 wide and upward. Ph 41/4 @ 41/40
	Band Iron, from 1% to 4 in. wide " 4 @ 4%#
	Horse-shoe Iron "4 @ 414
	Norway Nail Reds " 51/2 @ 51/4
	Black Diamond Cast Steel " 121/2 @ 13 0
	Machinery Steel " 7½ @ 8½¢
	Cast Spring Steel " 7 @ 7%
	Cast Spring Steel
	Homogeneous Steel Plate " 8 6 8%
	Common Horse Name 10 45 14 5
	R. R. Spikes, 51/2 x9-16 31/4 @ 31/4
	Perkins' Horse shoes, W keg of 100 lbs\$4.125
	" Mule shoes 5,125
	10 9 8 7 6
	Putnam Horse Nails 9 1 21 22 23 24 266
	Globe Horse Nails D D 20 21 22 23 25¢
	Railroad Spikes 31/4 @ 46
	Legglist discount to the trade

R. C. Hoffman & Co., Iron and Commission Merchants, roport the Pig Iron market as follows under date of Jan. 5: The new year opens with an active demand for Pig Iron and further advance in prices. We

Baltimore							n.		 846.00	0	48.0
Virginia	Came	6		350	61			 	 46.00	6	48.0
Anthracit											
66									33.00		
66									32.00		
5.5	Mot	tled	an	d 1	Wh	ite		 0 0	 31.00	0	32.0
Charcoa									85.00		
**									87.00		
Refined B	looms							 0	 70.00	0	75.0

\$30; White and Mottled, \$25 @ \$27; Car Wheel Metal, standard brands, \$35 & \$45.

Muck Bar, &c.—There is neither Muck Bar nor Old Rails in the narket, and from present indications there will be none for some time. We quote Wrought Scrap at \$23 @ \$35; inferior do., \$17 @ \$24; Cast Scrap, \$20 @ \$25; inferior do., \$15 @ \$20.

We quote Old Car Wheels at \$26 @ \$30, according to make,

Ores.—The demand for Orea fair, the supply have

i	for a large and profitable trade.
1	
1	CHARCOAL HOT BLAST.
	Missouri \$48.00 @ 43.00 Southern 38.00 @ 40.00 Hanging Rock None offering.
Ì	COKE AND COAL,
and it was not a second or the	Missouri
	Micronei 40 00 ft 10 00

IRON ORE. ron Mountain Southwest... Ore for flx...

RICHMOND.

Mr. ASA SNYDER, Iron Merchant and Furnace Agent, writes as follows under date of Jan. 5: Unusual activity has marked the business of the past week. Of all descriphave been received by our mills and found-ries for consumption the past week. The sales embrace about 200 tons Scotch Pig Iron and 100 tons Charcoal do. I quote market firm at the following figures: firm at the following figures:

Scotch Pig Iron	31.00 @ 35.00
American Scotch Pig Iron	33.00 @ 37.00
American No. 1	
No. 2	
No. 3	33.00 @ 35.00
Mottled and White	29.00 @ 32.00
Cold-blast Charcoal	42.00 @ 48.0r
Warm-blast Charcoal	36.00 @ 41.00
Old Rails	34.00 @ 36.00
Wrought Scrap No. 1	30.00 @ 32 00
Cast Scrap Machinery	27.00 (29.00
Richmond Refined Bar Iron, Stand'd.	31/2 @
Horse Shoes, Tredegar	
Mule "	@ 5.50
Old Dominion Nails, (standard size) according to size of lots,	4.25 @ 4.50

Freights to New York, \$1.85 for 2240 lbs. by sail.

LOUISVILLE.

Messrs. Coleman & Bro., 145 West Main street, under date of Jan. 5, write as follows: The week just closed, notwithstand ing it was the end of the year, showed greater excitement in Pig Iron than any since the commencement of the boom. Consumers, realizing a continued scarcity of metal, came eagerly into the market to purhas continued to strengthen, and we now quote: 20½ \$\phi\$ 21\$ for Straits; Banca at 24\$\phi\$; and English L. & F. at 21½ \$\phi\$ @ 22\$.—

Commercial Bulletin.

Commercial Bulletin.

Commercial Bulletin.

No. 2 Hanging Rock Charcoal \$40.00 @ 42.00 No. 2 No. 1 Southern Hanging Rock Coke 39.00 @ 40.00 No. 2	FOUNDRY IRON.
No. 2 1 1 2 4 50 1 1 1 1 1 1 1 1 1	No. 2 " 38.00 @ 40.00 No. 1 Southern Hanging Rock Coke 39.00 @ 40.00 No. 2 " 37.00 @ 30.00
No. 2 Southern "	No. 1 "Charcoal or Coke 38.00 @ 40.00 No. 2 " 37.00 @ 39.00 Open Silver Gray 34.00 @ 36.00
	No. 2 Southern

Messrs. GEO. H. HULL & CO., under date of December 31, write us as follows: The market has been very active and shows an advance of from \$3 to \$5 per ton during the last 10 days, we revise quotations accord-

	No. 2 37.00 (0) 38.00
f	No. 1 Southern, Charcoal 38.00 @ 39.00
	NO. 2 30,00 (Ø 37.00]
-	No. 1 Hanging Rock, Stonecoal and
B	Coke 37.00 @ 38.co
	No. 2 Hanging Rock, Stonecoal and
	Coke 36.co @ 37.00
	No. 1 Southern, Stonecoal and Coke. 38.00 @ 39.00
0	No. 3 " 30.00 37.00
0	"American Scotch" 34.00 @ 36.00
>	Silver Gray 32.00 @ 34.00
)	MILL IRONS.
9	Mill Irons 35.00 @ 37.00
3	No. 1 Charcoal, Cold-short and Neut'l. 35.co (4 36.00
)	No. 1 Stonecoal and Coke, Cold-short
)	and Neutral 34.00 35.00
2	No. 2 Stonecoal and Coke, Cold-short
	and Neutral 33.00 @ 34.00
,]	No. 1 Missouri and Indiana Red-short. 30.00 @ 37.00
	White and Mottled, Cold-short and
1	Neutral 29.00 @ 30.00
ı	CAR WHEEL AND MALLEABLE IRONS.
1	Hanging Rock, Cold-blast 50.00 @ 55.00
4	Alabama and Georgia, Cold-blast 45.00 (50.00
1	Kentucky, Cold-blast 45.00 @ 50.00
. [Pentine 1. Com Sweet dl. og de la lance

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.) LONDON, ENG., Dec. 22, 1879.

getting over" the dullest commercial secfor active resumption does arrive, there may be work enough for full time, and sufficient commissions to warrant the full mainficient commissions to warrant the full mainternance of prices, or even give a colorable ground for seeking additional imposts. It appears pretty certain that the holidays will be much better observed and more thoroughly enjoyed than for some years past. The almost astonishing revival of the past few months has imparted a life and tone to the trade of the whole country, which has added a zest to existence that had been added a zest to existence that had been wholly lacking. The iron men seem to be getting fairly on their feet again, and reports of new enterprises or of the revivification.

tion of old ones appear almost daily. A still better and more satisfactory feature of the altered state of things is the increased occupation afforded to the artisan classes, and the consequent diminution of distress and poverty. A very large proportion of the ironworkers who were among the principal recipients of public relief during last winter have already obtained employment, and the remainder are pretty certain. ment, and the remainder are pretty certain to meet with engagements early in the new year. It is said, indeed, that some few sections of workmen, the puddlers, for instance, are here and there not to be obtainable, not so much, perhaps, because the race is extinct, but because the men during the depression have either emigrated, migrated, or changed their occupations. This diffi-culty, however, will almost certainly disap-pear so soon as it is seen beyond doubt that the revival of trade is real and firmly sustained. The result hitherto is thus good and satisfactory, and it is an undoubted fact that at this moment we have far less distress among our poorer classes than was the case last year at this date. The agricultural districts may, perhaps, have a heavier share this time, but with them presents. time, but with them poverty weighs less heavily than with the lower strata of the population of the towns. Throughout most of the purely agricultural districts there are thousands of men who are accustomed to fluctuate between town and country, according to the state of trade. When the iron and steel works are briskly engaged and wages are good they may be found there, and when the contrary rules they "return to their muttons," and are content to serve the farmers. In the latter case they get their 15/to 20/ per week, more or less, in proportion to their beer or other allowances, and in the former secure from 24/to 30/, as laborers, hauliers, or in other capacities requiring no great amount of training or skill. At the present time wages are unusually low and employment scarce in the agricultural parts, so that it needs no especial gift of prophecy to foresee that with a continuance of the present (outward at all events) briskness of the metallurgical at all events) briskness of the metallurgical industries, the floating labor surplus will radiate toward the larger centers. The Eastern counties, particularly Lincolnshire, will furnish men for Sheffield and Leeds. The Midlands will unwittingly provide contingents for the iron works scattered here and there within their own boundaries; Shropshir, Worcestershire and Wales will absorb the wanderers from the West of England and the North and West of Yorkshire and Lancashire; Durham will placidly shire and Lancashire; Durham will placidly "assimilate" from around her own limits. The ironworks do not take all these nomads, hundreds of whom prefer to become colliers in order to secure the higher wages obtainable in that capacity. To the agricultural laborer, used to 15/a week and very bare laborer, used to 15/a week and very bare fare, the coal miner with 35/to 45/weekly, is a prince. The pit work may be rough and dangerous, but to the man with a half filled stomach, the risk must indeed be great and imminent to deter him from making an effort to attain the higher standpoint. This is no fancy picture. I could give ampledata in proof of what I state were such evidence called for. By the expenditure of from 6/to 10/ for railway fare these men may reach almost any part of the country within the limits to which I have already alluded. In some senses, perhaps, this facile migration obviates difficulties, but in others it has its inconveniences. It is, perhaps, it has its inconveniences. It is, perhaps, most strongly resented by the workmen resident in the iron and coal centers, who ob-ject to these immigrants, because they tend to oversupply labor and keep down wages, besides giving the employers grounds for resisting agitations for higher rates of

has been stiffer during the past week, and has been stiffer during the past week, and higher prices now prevail, not because the demand for positive consumptive purposes is any better, but solely because the miners' strike would seem to have afforded certain very imaginative persons the happy idea that a possible interruption of work ought to prove an excellent reason for advancing quotations. The miners are no doubt troublesome, but their employers sowed the seed by giving higher wages unasked, and therefore cannot grumble at the harvest. At the being that in which Christmas Day occurs, is a broken one in all respects for business purposes. Christmas Day fails on Thursday, and it may be said that virtually the business year ends on Wednesday. Up to and including Christmas Eve, every manufacturer and merchant strains his efforts to the utaget years. and including Christmas Eve, every manufacturer and merchant strains his efforts to the utmost possible extent, in order to get as many transactions as he can entered in his books for the year, and his subordinates are not a whit less busily engaged in dispatch-ing the goods in fulfillment of the orders. held. It is thought that makers' own yards Ing the goods in fulfillment of the orders. The workmen push ahead on their part, so that they make good wages; hence on all sides the period immediately prior to the great festival is characterized by unusual activity. All ends, however, on the afternoon or evening of Christmas Eve, and a universal suspension of work ensues, nominally for four or five days, but in reality there is little or no serious business done prior to the advent of the new year. The Christmas dinner duly eaten, and the "subsequent proceedings" properly performed, stock-taking begins in a large number of instances, and until that arduous task has been got through, the works cannot by a fair business was done between 59/9 and has been got through, the works cannot by a fair business was done between 59/ and any possibility resume their ordinary features. On this occasion I should not be surprised if the vacation proves a somewhat longer one than usual. As a means of ton, while to-day a very large business regetting over the dullest commercial section of the year and allowing the accumulation of foreign orders, manufacturers will been done between 62/ and 62/4/2, cash, closing buyers at the best, sellers at 62/6 per ton. The prices of shipping brands have much rest as possible, so that when the time all been advanced this week. The ship-

MAGE OF 101	3. 91	, ,	2 '	ч	LA.	96	100	1					
												No. 1.	3
G. M. B., at Gl	asgow											63/6	
G. M. B., at Gla Gartsherrie, Coltness.												66/6	
Coltness,												78/	
Summeriee,												68/	
Langloan,													
Carnbroe,							٠				*	. 68/	
Calder, at Port													
Glengarnock, a													
Eglinton,												. 64/	
Dalmellington, Shotts at Leitl												63/6	
Shotts at Leitl	1		- 1		4.9	+	23	12	-	*	* 5	07/6	

74

Ja

Ju

inf

fav

text

TIL

BIDDLE

We warr
sented, me
more easily
uring Fauc
afford to be
and "time
cleanliness,
nel to collect

MANI LANE General A

NICHO

PATENT DECISION.

Hardware dealers will please take notice of the decree of Judge Lowell, of the United States Circuit Court, in the case of Millers Falls Company against Quimby S. Backus, for infringement of Bit Brace Patents, which decree was in favor of the MILLERS FALLS COMPANY. The full text of the opinion may be found on page 11 of The Iron Age, of date December 18, 1879.

We shall have more to say on this subject.

MILLERS FALLS CO.,

74 Chambers Street,

NEW YORK.

HABERMAN,

MANUFACTURER OF

STAMPED, JAPANNED AND PLAIN

NWARE

House Furnishing Hardware,

TINNERS' TOOLS AND MACHINES.

No. 294 PEARL STREET,

(Bet. Beekman & Peck Slip.)

NEW YORK.

Reversible Ice Creeper



"A" represents the Creeper in position ready for usa.

PATENTED APRIL 20, 1878. A simple and sure prevention against failing on icy pavements. Easily adjusted to the boot or shoe. For prices and terms to the Trade, apply to the man-

CHILDS, GROFF & CO.,

hows the Creeper thrown back entirely out of the way when not in use, or walking in doors. FOR SALE BY
BIDDLE HARDWARE CO., Philadelphia.
PECK & SNYDER, New York.
SMITH, COVERT & CO., Albany.
J. P. PHINNEY & CO., Bosten.

PRATT & CO., Buffalo.
EDWIN HUNT'S SONS, Chicago.
HAMILTON & MATHEWS, Rochester, N. Y.

LANE'S MEASURING

Price, \$3.00.
Light or Heavy Molasses,
Varnishes or other Fluids.

MANUFACTURED EXCLUSIVELY BY LANE BROS., Millbrook, N. Y.

General Agency, GRAHAM & HAINES, 113 Chambers St., New York. NICHOLS' SELF-ACTING ACID PUMP.



Absolute Safety! Perfect Ease! Time, Labor and Material saved by using the NICHOLS ACID PUMPS, to draw all kinds of scids from carboys. Every pump war-ranted. Send for new circular and price list. Manufactured only by

Acid Pump & Siphon Co New London,

Conn.



TOOLS CHEAP, OF Enterprise Mfg. Co., Geneva, Ohlo.



FINISHED

[BRIGHT OR BLUED]



NATIONAL HORSE NAIL CO., VERGENNES, VT.

DURRIE & McCARTY, Agents, No. 97 Chambers St., New York

The Oldest Shot Tower in America.



THOMAS W. SPARKS, No. 1, containing 8 Steel Knives....

SPARKS American Chilled Shot.

Rivaling the English and all Others. STANDARD DROP & BUCK SHOT AND BAR LEAD. 121 Walnut Street, Philadelphia.

THE

Sprague Novelty Works,

15, 17 & 19 North Water Street, ROCHESTER, N. Y.,

Hardware Specialties. SPRACUE'S

"Perfection," "Combination" and other Razor Strops. Refer to The Iron Age first issue of each month.

A. F. PIKE. East Haverhill, - New Hampshire, Manufacturer and Wholesale Dealer in Scythe, Axe, Knife and Hacker

STONES OLD RELIABLE, POND (Red Ends), OND GRIT, MOUNTAIN, N MOUNTAIN. any style desired.
PRICE and QUALITY GUARANTEED.
All the above Stones are of good
k en grit and will not glaze.

RIEHLE' BROS., STANDARD TESTING MACHINES



"DRAW CUT"
BUTCHERS' MACHINES.
Choppers, Hand and Power Stuffers,
Lard Presses,
Warranted thoroughly made
and the BEST IN USE.
MURRAY IRON WORKS,
Burlington, Iewa.



Rear of 407 Cherry St., Philadelphia, Pa. Send for Price List.

Established in 1839.

Formerly L. & A. G. Com

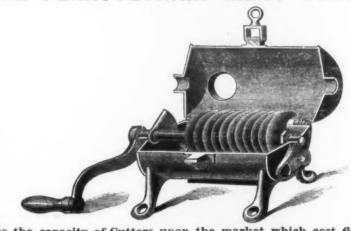
MARCH 23, 1869, REISSUED 1870.

FEBRUARY 23, 1864, REISSUED JUNE I, 1869, IMPROVED AUG. I, 1877.

The back thrust when in use borne by the SHANK instuad of the Hand'e. None genuine unless stamped "L. COES & CO."

Worcester, Mass.

These nails are made of the best brands of NOR-WAY IRON, and are guaranteed to be equal to DURRIE & McCARTY, Sole Agents.



Has the capacity of Cutters upon the market which cost 60 per cent. more money.

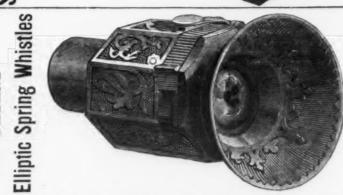
PRICE LIST.

Now, z and z are packed ½ dozen in a box; No. 3 packed ½ dozen in box.

Discount to the trade so %

LLOYD, SUPPLEE & WALTON, Philadelphia. DURRIE & McCARTY, New York City.





9 EA 0

We call the attention of the trade to the whistle for speaking tubes, represented in above cut, as being superior, in a mechanical point of view, on account of the

PATENT ELLIPTIC SPRING,

which is much less liable to break and get out of order than the spiral spring usually used. These whistles being made entirely of metal, are very strong and durable. They are offered in a variety of styles at very reasonable prices. Send for illustrated circular and quotations. We also invite an examination of our PATENT HEVERSHEE DOOR LOCKS, which by their peculiar construction, combine simplicity, strength and durability. In these Locks the combination of the Fatent Lever and Spring renders the latch movement very easy and prompt in action.

Illustrated catalogues and price lists furnished on application.

TRENTON LOCK AND HARDWARE CO., - Trenton, N. J. fanufacturers of Superior Building Hardware.

JAMES M. VANCE & Co., 211 Market St., Philadelphia, Pa. ; JAMES MARSHALL, 48 Warren St., New York.



TOOL HANDLES AND SEAT STICKS FOR CARRIAGES, &c. of wood, such as Drop Knobs, Furniture Enobs, Organ Stops, Brush of the Patent ANTI-NERVOUS TRIANGULAR PENHOLDER, purchasing. F. R. EMMONS, Agent, 132 Duane St., New York,

RHODE ISLAND HORSE SHOE CO.,

Tea Pots. Horse, Mule & Snow Shoes of the Perkins Pattern. Works at Valley Falls, R. I., and Buffalo, N. Y. Office, 31 Exchange Place, Providence, R. I. C. H. PERKINS, Gon'l Manager, F W CARPENTER, President.

pointing to a very marked extension of roduction thereabouts between now and lay next. The plate mills are especially well engaged, owing to the briskness of the shipbuilding yards. The same cause affords ample employment to the marine engineers, nut and bolt makers, and a variety of other manufacturers. The Cleveland smelters are rather nettled auent the somewhat hostile reception accorded to some of their pig iron on your side of the Atlantic, and they assert that the shortcomings alleged have no existence in fact. Cleveland pig of any reputable brand is not cold-short, although it may at first seem to be so by strange users. Even in this country a similar was at one time attributed to it, but that has was at one time attributed to it, but that has long since been regarded as being erroneous. The Cleveland people who made the original shipments to Boston, U. S. A., bring forward proof of the good quality of the iron in the shape of repect orders, the filling of which will shortly bring additional con-signments into the United States. At the present time Cleveland G. M. B. at Middlespero' are quoted f. o. b. in Tees:

No. 2 Foundry 53/6 Mottled White 3 48/6 Kentledge No. 4 Forge 48/6 As regards the

MANUFACTURED IRON TRADE

the usual quarterly returns of the ac-countant to the Northern Board of Arbitration have just been issued. The average net selling prices he certifies to have been £5. 5/7, and gives the following particulars: Sales During the Three Months ending November

	be	er 30	, 18	79.				
Description.	Weig	tht in	nvoic	ed.	Per ct. of total.		t I	age orice ton.
Ruils Plates Bars		18	Qrs	Lbs 1 13 18 4	3.13 57.53 22.38 16.96	5	6. 18 5 11 0	d. 3.39 4.22 0.16 5.74
Total	20 182	2.9	-	8	100.00	-		6.8e

THE RISE IN PRICES to which I made allusion at some length in my last week's letter is still in progress, and so far as one can judge from the "outward and visible signs," there is no limit which may not be reached and passed by the leadmay not be reached and places of the most mo-ers of the movement. This is the most no-ticeable in respect of iron, and especially in the South Staffordshire district. When I the South Staffordshire district. When I last wrote it was generally rumored that the rise to be declared on the quarter days in marked iron prices would be 20/ per ton, and firms were cited as being willing to book orders subject to that advance, by which the list quotations will be brought up to £9 per ton. During the week the reports this head have taken a more decided color, and we are now most confidently assured that the new price for marked bars will be £10, or a rise of £2 over the present nominal figures. Did these rumors merely rest upon the slender authority of those "irresponsible persons," &c., who write on trade matters for the daily papers, one might pass the matter off with an incredu-lous smile as a joke of the period. Unfortu-nately, such is not the case. I have had personal assurances as to the probability of the new increment, and as I write I have before me the newly-printed circulars of several good houses in which pointed refer-ence is made to the matter. One such firm (Messrs. T. W. & J. Walker, of London, Wolverhampton, &c.) say: "Iron seems to advance 10/ a week, and nearly all the works are full of orders. Prices are very irregu-lar." Messrs. Brooker, Dore & Co., of Lonn, who do the export business of E. P. & Baldwin, the Blackwell Galvanized Iron Company, &c., say: "As regards marked bars, no further official rise has been made, but the list houses refuse to sell under £9 at the works. We quote, therefore, nominally, at £9. 15/ delivered London. An opinion is gaining ground that on quarter day next prices will be advanced £2 per ton, which would make bars £10 at works." On the Birmingham 'change, last week, holders of second-class and ordinary unmarked finished iron were even more clamorous than the producers of best brands, and, what is more, they were largely successful in converting buyers to their views. They secured from £7. 15/ to £8. 5/ for ordinary bars; £9 for hoops, and £10 to £10. 10/ for 20 W ets, while 24 W. G. sheets fetched £11. and lattens, or 27 W. G., £13 for lots to elivered during the next in many cases also subject to the proviso that prices shall be those current at the time of delivery! Even at these figures sellers are reported to have had the upper hand to such an extent that they rejected offers for large lots. This is a difference with a ven-geance from the state of affairs three months, or even two months, ago! At the same time there is a strong impression that a very important proportion of this simply consists of speculative buying by merchants, and of equally speculative "jumps" by producers. Between the two, legitimate traders are certain to suffer to no inconsiderable extent, and the consumptive wants of the market will be thrown back. Even now we are in possession of evidence showing the confusi possession of evidence showing the confusion and uncertainty generated by the spasmodic action of the trade. This comes in our latest reports from Australia. At Melbourne, on November 1st, it is stated that telegraphic advices of the changes in England had come to hand, and holders had at once put up their prices, but the state of the market there was such that in scarcely any instance had the full increments been secured. Pig iron had been so enhanced as to stop all but urgent trade sales. Galvanized iron, which had then risen £2 in England, had been advanced 10/, but only 5/ more could be secured. This was the rule throughout, and shows very plainly that these important markets cannot possibly bear further imposts. At home, too, this remark has scarcely less truth, for too, this remark has scarcely less truth, for it is clear to most people that the wants of Philadelphia, and the Harlan & Hollingsconsumers are relatively small, and that worth Co., of Wilmington, both having one their requirements certainly do not warrant or two large boats under-way. Several large these continuous upward fluctuations. Other orders were pending in the early part of last changes of the week have been these :

busier, and there are many indications 10 %; rises in iron wire of 10/ 2 ton, making plain o to 6, 10/6; best ditto, 11/@ still continues. We are informed, however, 24/6; galvanizing, 3/6 extra; best drawn on the best authority that the contracts may 24/6; galvanizing, 3/6 extra; best drawn fencing wire, annealed, £10 @ £13; prepared bright, £11 @ £14, and galvanized, £13/5 @ £18; a rise of 5 %, less discount, in brass cased and taper tubes, accompanied by a rise of ¼d \$\mathbb{P}\$ foot on 2-inch iron taper tubes; brazed iron tubes are advanced £2 \$\mathbb{P}\$ ton, and discounts on solid stair rods are reduced by 2½%; an advance of 10% on Willenhall rim, dead and drawback locks; a notification of a probable further rise of 5 % on wrought iron tubes, discounts off, which are now, gas, 67½; galvanized, 52½, and steam, less discount on hollow vares, making it 45 %; a rise of 6d ? cwt. on Leeds cut nails, making cut clasp inches, 10/ and bringing cut bills to 15 W. G., iron and brass rivets to 17 inches : an additional £1 brass rivers to 17 inches; an additional £1 ② ton on galvanizing sheets, making 24 W. G., packed in felt, £10, 10/ in London, and 26 W. G., £21, 10/. Besides these changes discounts and quotations are in many cases wholly withdrawn for the time being, owing to the uncertainty of the iron and metal markets.

AT SHEFFIELD,

by the time this letter is deposited in the care of the postal authorities, the heat and turmoil of the most fiercely-contested election the town has ever experienced will be over as regards the voting, at all events—and ne issues raised will have been definitely decided under the ægis of the ballot. It is not germane to my purpose to speculate as to the result, but I may say that whatever may prove to have been the aggregate decision of the voters, the influence of the contest upon the now rapidly-approaching general election will necessarily be great. In the main, the appeal has been upon the forall their energies in efforts to influence votes in favor of or against the candidate (Wortley) who confessedly represents the views of the government on foreign questions. Tele-grams received here during the day report much excitement in the town and great con-fidence in both camps as to the result. I write in total ignorance of the collective choice of the electors, but I am bound to state that if Mr. Wortley should be the chosen man, no greater victory could possi-bly have been achieved by the ministry of Lord Beaconsfield or in favor of his policy seeing that Sheffield is a pre-eminently Radical constituency, and has hitherto in variably rejected every Conservative candidate who has presented himself. The victory of Mr. Waddy will, therefore, be natural and in accordance with the traditions of the town, whereas the election of Mr. Wortley will represent a tremendous change in support of a "spirited foreign policy," as carried out by the existing ministry. I mention this in order to show your readers the probable bearings of the election—the most important in many respects which this country has known for a very long series of years. Apart from electioneering matters, it is difficult to extract anything of importance from Sheffield this week, save a few vague statements as to the general condition of business. The heavier branches of the iron and steel trades are fairly brisk, the rail mills and Bessemer departments being especially well engaged. The cast steel houses are receiving better orders, and some of them are increasing their production. Most of the additional demand in this respect is from the United States and the home gineering trades. In wire, edge-tools, files and saws the business doing is about up to an average. The principal cutlery and elec-troplating firms are very well engaged, but the smaller concerns are not doing as much as is usual at this season of the year

ANNUAL REVIEW

Manufacturing Industries of Eastern Pennsylvania.

Office of The Iron Age, 250 South Fourth St., PHILADELPHIA. December 30, 1879.

as almost unne details at a time when all branches of trade are equally prosperous, but as we have done so on previous occasions, we will follow our usual course. In a general way we may say that we find a large increase in the number of hards employed in all departments except shipbuilding, which is exceptionally dull.

One year ago we received statements from representative firms in regard to the number of hands on their pay rolls. At that time the aggregate, in round numbers, was about 4500, while at this date, the same firms aggregate over 6000, so that 35 % to 40 % increase may be regarded as a fair es-The most satisfactory feature. however, is that the orders on hand are of nowever, is that the orders on hand are of such a character as to insure a large business during the incoming year. Wages have been advanced about 15 %, so that all classes are profiting by the improved condition of affairs.

Ship Building.

This is the only branch in which we have to note any falling off, and in this depart-ment the work on hand is very insignificant. In prosperous times from 8000 to 10,000 men are employed in the yards of Iron shipbuilders, but at the present time not more than 2500 to 3000 are at work, and these chiefly on repairs which will soon be finished. There is about the usual amount of work A summer,

be signed very soon; the vessels are wanted, and as there is now but little prospects of lower prices for Iron, it is likely that the parties will decide to build at an early date, although a further advance will effectually shut out business. In Wooden shipbuilding there is a good deal of activity, and prospects shut out business. in that line are very encouraging

Locomotives

of the most important interests in Philadelphia is that of locomotive building. Activity at the Baldwin Works is generally regarded as an indication of activity in any other departments, such as car build-g, machine tools and various descriptions railway equipments and supplies. These of railway equipments and supplies. cause a heavy consumption of Iron, so that the condition of business at this establishment is watched with considerable interest. Through the courtesy of the firm we are enabled to present a comparison of the number of locomotives built this year with the number built in all the years since 1873, which is as follows:

										1877													
										1878													
									130	1879				٠	0	0	0	۰	0	0		0	٠

We are also informed that the amount of work on hand will extend pretty well into the spring months, while the applications for additional work seem to indicate a business larger in the coming year than at any previous time. The increase during 1879 has been chiefly for American roads, but the company have had important orders from South and Central America, and especially from Australia. The American Locomotive seems to have completely occupied the field in the direction indicated, and there is little eign policy of the government, although in the direction indicated, and there is little there have been many side issues raised and discussed which may have swerved many voters from the principal considerations of the conflict. During the progress of the conflict. During the progress of the very largely "campaign" business has been very largely neglected by principals and others, who have one side or the other concentrated. neglected by principals and others, who have, on one side or the other, concentrated all their energies in efforts to influence votes in favor of or against the candidate (Wortley) is really greater than would appear from the comparison of the figures showing the number of locomotives built each year.

Car Building.

In this line there has been continuous tivity, and shops that have been closed for years are now running as full as ever, while some firms have been compelled to enlarge their facilities, and are still far behind with their orders. In the car shops in Philadel-phia, Wilmington, Harrisburg and vicinity, there are now upward of 5000 men at work, receiving an average advance in wages of about 20 per cent, as compared with 1878. The orders on hand will carry builders well into spring, and from the number of applications from various roads there is little doubt that business during the coming year will be very active. The demand seems to be from all sources, but foreign orders have been chiefly placed with builders on the seaboard, transportation charges from points inland being almost prohibitory. The Jack-son & Sharp Company, of Wilmington, re-cently loaded two vessels with cars for Brazil, and have just received additional orders from the same country. J. G. Brill & Co. Philadelphia, have shipped quite a number to Europe, Australia and South America, and there are evidences of steady growth of the export trade in both freight and passenger cars.

Car Wheels, Tires, &c.

In confirmation of the improvement other departments connected with the rail-way interest, we find Car Wheel manufac-turers crowded with orders. At the exten-sive establishment of Messrs. A. Whitney & Son, we learn that business during the past six months has improved very rapidly, and they are now turning out quite as many wheels as at any time since the war. Prospects are said to be of the most encouraging character, and there is no apprehension of serious reaction for the present. This firm are steadily increasing their export trade, but the special activity for the time being is owing to the demand from sources within the United States. Tires have also been in great demand, and such important concerns as the Midvale and the Standard Steel Works, have been crowded with orders. Both establishments have been pushed to their ut-most capacity, the demand at this date giving promise of equal activity during the coming year. We have not been informed as to the percentage of increase, but there is no doubt it is very considerable

Scales.

Riehlé Bros. report a considerable improvement in the demand for Scales. Orders have been received from the United States government for Scales and Beams for the various customs departments. They have also received important orders from leading railways, iron works, &c. The Russian government also gave orders for a testing ma chine, similar in all respects to the one made by this firm for the Pennsylvania Railroad now in use at Altoona. A large Crane Beam of 120,000 lb, said to be the largest in the world, was also ordered from this firm by the Russian government.

Bolts, Rivets, Spikes, &c.

In this department we find that the de and has been extraordinary, averaging at least 80 % greater than in 1878. Such firms in Philadelphia as Hoopes & Townsend, and Corydon Winch, Sternbergh, in Reading, and Gilmor, of Baltimore, have, during the greater part of the year, been running to their utmost capacity. Prices have advanced about 70%, and prospects are said to be most

Heavy Machinery, Rallway Tools, &c.

The demand appears to have exceeded all anticipations. We find an average increase of at least 50 % in the number of hands employed, as compared with this date a year ago. Some firms are running double the number, and the smallest increase reported but the sudden advance in the by any firm is about 20 %. It may also be Iron prevented the contracts being stated that the shops are full of work, and reduction of £2 in Cornish tin standards, price of Iron prevented the contracts being making superior common 82/ and superior signed, the impression being that the ad- very few are in a position to accept order to making superior common 82/ and superior signed, the impression being that the ad- very few are in a position to accept order to making superior common 82/ and superior signed, the impression being that the ad- very few are in a position to accept order some rapidly fill our orders." In the cuttime 83/ \$\frac{1}{2}\$ cwt., an advance on iron bedsteads of 15, and on brass and composite of time the orders were postponed, causing considerably to our facilities in order to
making superior common 82/ and superior price of Iron prevented the contracts being stated that the shops are full of work, and
very few are in a position to accept order some rapidly fill our orders." In the cuttime the orders were postponed, causing considerably to our facilities in order to
making superior common 82/ and superior price of Iron prevented the contracts being stated that the shops are full of work, and
considerably to our facilities in order to
making superior common 82/ and superior accept orders." In the cuttime the orders were postponed, causing considerably to our facilities in order to
making superior common 82/ and superior accept orders."

In the cuttime the orders were postponed, causing considerably to our facilities in order to
making superior common 82/ and superior accept orders."

In the cuttime the orders were postponed, causing considerably to our facilities in order to
making superior common 82/ and superior accept orders."

In the cuttime the shops are full of work, and considerably to our facilities in order to
making superior common 82/ and superior accept orders."

In the cuttime the orders were postponed accept orders were postponed accept orders.

quite a depression at the ship-yards, which still continues. We are informed, however, it attention. Taking the condition of affairs as a whole, it is doubtful if there was ever a time in which more work was being turned out or orders coming in more rapidly than at present. Some business is being done on foreign account, but the home demand is onsidered the most desirable.

Light Machinery.

The demand has been very satisfactory, and business shows a rapid and important and business shows a rapid and important improvement. There is nothing calling for special remark; all the various establish-ments make similar reports, viz., full of busi-ness, with excellent prospects for the coming year.

Steam Engines.

Business has not been active in proportion to other departments. There is some improve-ment in the demand and a slight increase in prices, but not to such an extent as might have been expected. Inquiries are very numerous, however, and it is anticiyery numerous, nowever, and it is anticipated that the incoming year will be more satisfactory than the one now closing. Schleicher, Schumm & Co., manufacturers of the Otto Silent Gas Engine, report a rapidly increasing demand for their specialty. Business during the past year has been steadily improving, the last six months showing an increase of 125 %. They are now turning out engines at the rate of about four a week, with prospects of steady

Shafting, Pulleys, Belting, &c.

In these branches we have reports most favorable character. Several of the leading Shafting and Pulley manufacturers report a demand beyond all precedent. One concern is nearly two months behind with orders, and cannot gain on the demand, although running a largely increased force of hands. Belting manufacturers report an increase of business amounting to about 35 %. Prices have advanced about 30 %. The outlook is quite encouraging, although there is a kind of unfair competition from sellers of foreign goods. These are said to be gotten up cheaply, and, although very inferior in ality, are sometimes taken on account of quality, are sometimes to their seeming cheapness.

Hardware Specialties. In all departments we find a gratiying

increase of business, the following commu-nication from the Enterprise Manufacturing Company being a fair representation reports from several other sources: "O trade during the present year has shown a steady increase each month over the corresponding periods of the previous year, and our volume of business will be fully 20 % in excess of that of 1878. This increase is ne of business will be fully 20 % in very gratifying, and we are fully convinced from the 'signs of the times' that an era of prosperity is now and has already dawned upon us. Our trade has been maintained in good and satisfactory condition; the per-centage of loss from failures has been very small, and altogether the outlook is quite hopeful. Our stock of goods is now quite low, the active demand having exhausted stock and kept our facilities taxed to me the requirements of our trade. enter upon the new year with cheerfulness and confidence, believing that continued and increasing activity will prevail in business circles throughout the whole of our United States." The E. M. Co., as mentioned some time ago, are about to make a further ex ension to their premises, at a cost of nearly \$80,000. The American Machine Company are also largely extending their premises to meet the growing demand for their specialties. They report an increase of business of about 20 % during the year, are bare of stock, behind with orders, and regard the incoming year most hopefully. The Pennsylvania Hardware Company, of Reading, write as follows: "The increase in business that the state of ness during the year just closing has been very gratifying indeed—we having trebled our business of 1878. Our stock is low having been busy all year in filling orders. The prospects for 1880 are of the brightest, many large houses being now in the market placing orders, something very unusual at this season. Our facilities for doing busi-ness next year will be very much enlarged and improved, and we look forward to a large and extensive trade during 1880." Rick Bros., of Reading, also report a large increase in their business during the year. They were unfortunate in being partially burned out a week ago, but with character-istic energy they will at once rebuild and make such additions as will largely increase the their manufacturing facilities. They expect to be ready to fill orders within two weeks, so that their customers are not likely to suffer inconvenience. Saws, Files, Edge Tools, Cutlery, &c.

Business throughout the year has been

uniformly good, and during the past six months especially has shown rapid improve-ment. In saws, Messrs. Henry Disston & Sons report an increase in business amounting to about 30 %. They say prospects were never better than at present. In Edge Tools an increased business of about 35 % is reported. Prices have advanced 15 to 20 %, with prospects of a further advance soon. Stocks are light and orders generally about 30 are light and orders generally about 3 days behind. Messrs. Yerkes & Plumb say "We think the outlook for 1880 very en-couraging, and the legitimate demand for all lines of Hardware far greater than during any similar period." McCaffrey & Bro. re-port an increased business in Files amountng to 25 %. They are carrying less stock than they have done for years, and are con siderably behind with their orders. The deprecate too rapid an advance in prices, or the ground of its offering inducements to foreign manufacturers to enter the market G. & H. Barnett report as follows again. Our business has increased almost 50 during the past year, and have orders or hand to last for a considerable time to come and are importuned from all sections of the country for goods, the trouble being to sup ply demand. The advent of the New Year brings with it no less a desire of the buyer to place their orders, and we feel warranted in saying, as our opinion, that the present active state of trade is good for a long time to come, in view of which h we are adding very

prices have advanced 40%. Stocks are exhausted and the prospect for 1880 unusually bright.

Shovels, Agricultural Implements, &c

Business in this department has been very gratifying, averaging an increase of about 35% compared with 1878. We learn that about 80,000 dozen Shovels have been manufactured in Philadelphia during 1879, with prospects of a still greater business during the coming year. The Kimball Shovel Co., of Baltimore, write us that "sales have largely increased, both in size of orders and new customers, principally for export. find the stocks in the hands of manufac turers and dealers very light, and the former with as many orders as they can fill for the next two months, so that, as the spring trade opens, it will be more a question of production than price."

In this department there has also been a considerable improvement, although the specialties manufactured here are in constant demand and not liable to fluctuations. At the Star Lock Works, Hillebrand & Wolf report an increased business during 1879, amounting to about 35 %. They run about 100 hands on full time, and regard the out-look very favorably. Their export trade is chiefly to Germany, although they have recently had orders from Australia. The D. K. Miller Lock Co. have also increased their business very considerably, and expect to do still better during the coming year

Carriage Bolts, Screws, &c.

The demand for Carriage Bolts has been very heavy, and during the past six months beyond precedent. All the manufacturers are running to their fullest capacity, and are considerably behind with their orders. Welsh & Lea, Coleman Eagle Bolt Works, are employing about 230 hands on full time, and would add to their number if they had room to place them. There are several other important concerns from whom we have no report further than that they are exce ingly busy. The Philadelphia Screw Co. have recently moved into their new build have recently moved into their new building, and expect to do a very large trade during the coming year. They increased in 1878 about 35 %, but with superior facilities and improved machinery they expect to double their output in 1880. They have had steady demand, and nearly always pushed to keep pace with orders.

Foundry Facings, Crucibles, &c.

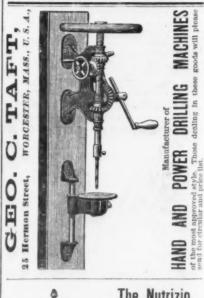
We find a largely-increased business in these branches, but very little improvement in prices. Prospects in this respect are more favorable, however, and it is quite likely that a general advance will be made early in the new year. Strow, Wile & Co., as we mentioned a year ago, received sev-eral orders for Crucibles from Europe. Upon inquiry at the office of the firm a few days we find that the business is now firmly established, orders have been duplicated from time to time, and applications made from other sources also, the latest being from a country in Africa.

Stoves.

The Stove trade has been the largest and the best in years. Sales have been very heavy, and although prices not what they should have been, they are steadily improv-ing, and the business of next year is likely to be on a more satisfactory basis. Many parties took orders early in the season, and when the advance came they were already loaded with business. Stocks have been pretty well exhausted, and Stove manufac-turers feel very hopeful in regard to business during the incoming year.

Tin Plate.

This important interest made a rapid advance in Philadelphia during the first eleven months of the year now closing, the receipts being 369,904 boxes, against 288,205 in the same time last year, a total increase of \$1,-699 boxes. The total shipments to the United States in the same time were 1,591,-624, against 1,523,498 in 1878, a gain of 68,-126 boxes, from which it appears that Philadelphia is absoluted. delphia is absorbing all the increase and something additional.



Elev Cra Stol Elev Elev Eme Ivel Leh Engi Engi Bal Engi Bar Lov Sha We Equi





The Iron Age Directory

and Index to Advertisements.

Wheeler & Melick Co., Albany, N. Y..... Wheeler & Mellek Co., Albany, N. Y.
Alr Compressors.
Clayton Steam Pump Works, 14 and 16 Water st.,
Brooklyn, N. Y.
Alarm Money Drawers.
Fucker & Dorsey, Indianapolis, Ind.
Anti-Friction Metals,
Reeves Paul S., Philadelphia,
Anvils, Manafacturers of,
Fisher & Norris, Tree Work.
Architecture, 36 Goerek, N. Y.
Bang, Phils, etc., Manafacturers of,

Architectural Iron Work,
Æina Iron Co, 86 Goerek, N. Y.
Augers, Hits, etc., Manufacturers of,
Jennings C. E. & Co., 86 Chambers, N. Y.
Sedgwick Mfg. Co., 80 Beambers, N. Y.
Snell Mfg. Co., 81 Beekman, N. Y.
Axe Wedge,
Porter & Wooster, Boston
Axles, Springs, &c., Manufacturers of,
Cook R. & Sons, Winsted, Conn.
Hotchkiss Guy C., Field & Co., 622 E. 14th, N. Y.
Lambertville Iron Works, Lambertville, N. J.
Shelqon & Co., Auburn, N. Y.
Babbit Metal. Sheldon & Co., Auburn, N. Y.
Babbit Metal.
Philadelphia Smeiting Co., 12th and Noble, Phila.
Bag Holder.
Sprengte L. Jeff., Ashland, Ohio.
Baud Saw Machinery.
Kimball & Kimball, Philadelphia.

Barb Wire. Scutt H. B. & Co., Buffalo, N. Y. Scutt H. H. & CO., Burnato, N. I.
Bed Screws,
Shelton & Co., Birmingham, Ct.
Bellows, Manufacturers of.
Scott Geo. M., Chicago, Ill.
Bells (Sleigh.)
Bevin Bros. Mfg. Co., Easthampton, Conn...
Belting, Makers of.
Alexander Bros., 412 N, 3d, Philadelphia.
N. Y. Belting and Packing Co., 37 Park Row, N. Y.
Bleyeles.

N. Y. Beiting and Packing Co., 37 Park Ro Bicycles.
Pope Mfg. Co., 65 Summer, Boston
Bird Cages. Makers of.
Jewett John C. & Sons, Buffalo, N. Y.
Lindeman O. & Co., 254 Pearl, N. Y.
Maxhelmer John. 247 and 249 Pearl, N. Y.
Bit Braces., Moniforchivers of.
Backus Ches., Bridgeport, Cl.
Williers Falls Co., 72 Chambers. N. Y.
Blocks., Tackie., Makers of.
Burr & Co., 31 Pear Sipp. N. Y.
McMillan Win. H. & Bro., 143 South, N. Y.
Penfield Block Works, Lockport, N. Y.
Providence Tool Co., Providence, R. 1.
Blooms.

Biooms.
Eames' Petroleum Iron Works, Titusville, Pa.
Blowers and Exhaust Fans.
Sturtevant B. F. Boston.
Boilers, Steam.
Larber W. H. & Bro., Allentown, Pa. Balt Cutters.
National Bolt and Pipe Mach. Co., Cleveland, O., Sellers Wm. & Co., Phila. and 79 Liberty st., N.Y. Wiley & Russell. Greenfield, Mass. Sellers & Russell, Greenfield, Assembly Wiley & Russell, Greenfield, Bolt Forging Machines.
Forsaith, S. C. & Co., Manchester, N. H.

Bolt Forging
Forgath, S. C. & Co., Manchester, N. H.
Forgath, S. C. & Co., Manchester, N. H.
Bolts (Screw.)
Coleman Eazle Bolt Works, Philadelphia.
Brass, Manufacturers of.
Annonia Transport of Copper Co., 19 Cliff, N. Y.
Annonia Transport of Copper Co., 19 Cliff, N. Y.
Annonia Transport of Copper Co., 19 Cliff, N. Y.
Davol John & Sons, 100 John, N. Y.
Holmes, Booth & Haydens, 49 Chambers, N. Y.
Merchant & Co., 507 Market st., Phila
Plume & Atwood Mg. Co., & Chambers, N. Y.
Rome Iron Works, Rome, N. Y.
Scovill Mg. Co., 42 Broome, N. Y.
Waterbury Brass Co., 26 Broadway, N. Y.
Waterbury Brass Co., 26 Broadway, N. Y.

Cartridges. Schuyler, Hartley & Graham, New York. Casters. Clark Geo. P., Windsor Locks, Conn... Glass Ball Caster Co., 96 John, N. Y... Phopnix Caster Co., indianapolis, Ind...

ery

een fac-

and

dealing in the

ZIO POT

he BEST offee Pot Patented

cent: Net 210,

hilada. Friend.

s wanted ry Sugar t to can-r the sale

reka Sap Samples, postpaid ress igton, Vt.

Phonix Caster Co.
Custings. Iron.
Barber W. H. & Bro., Allentown, Pa.....
Barber W. H. & Bro., St. Louis, Mo.
St. Louis Malleable Iron Co., St. Louis, Mo. St. Louis Mancas.
Caulking Irons.
Carver John, 288 Monroe, N. Y......

Carver John, 285 Monroe, N. Y.
Chalins.
Braile & Co., Philadelphis, Pa.
Braile & Co., Philadelphis, Pa.
Braile & Co., Philadelphis, Pa.
Braile & Co., Manuscaturers of.
Braile Bros., Millbury, Mass.
Cushman, A. F., Hartford, Conn.
The E. Horton & Son Co., Windsor Locks, Conn.
Clock Springs, &c.
Cary & Mocn., 234 W. 29th, N. Y.
Dunbar Bros., Bristol. Conn.
Coal, Miners of.
Ely E. B. & S. W., New York.
Pardee A. & Co., 111 Broadway, N. Y.
The Hoboken Coal Co., Jersey City, N. J.
Coal Hods. Wm., 311 Cherry, Phila.
Coal Y Lasses, & Co. Buffalo, N. Y.

Coal Vases.
Shepard Sidney & Co., Buffalo, N. Y.,
Coffee and Spice Mills.
Lane Brothers, Millbrook, N. Y.,
Enterprise Mfg. Co., Philadelphia, Pa. Coke.
Wister Francis, 230 S. Third, Phila...
Compasses and Dividers, Manufacturers of
temis & Call Hdw. & Tool Co., Springfield, Mass.

bemis & Call Hdw. & Tool Co., springers, assessing the forchant & Co., cof Market st., Phila.

Morchant & Co., cof Market st., Phila.

The New Haven Copper Co., 245 Pearl, N. Y.

Corn Huskers.
Chambers, Bering & Quinlan. Decatur, Ill...

Corrugated frem.
Mosclev Iron Bridge and Roof Co., 5 Dey, N. Y.

Countershik.
Barth Les., Manufacturers of.
Wile. Sledel & Co., 709 Market, Phila.

Cutlery, Importers of.
Boker Hermann & Co., to Duane, N. Y.

Clattworty F. & W. & Chambers, N. Y.

Friedmann & Lauterlung, of Chambers, N. Y.

Friedmann & Lauterlung, of Chambers, N. Y.

Cutlery, Manufacturers of.

Haight Jos., Portchester, N. Y. 38

Discount Tables.
Leigh Edwid, E. St. Louis Elevator, St. Louis, Mo. 16

Door and Gate Springs.
Dunne P. R., 185 Pullon, N. Y. 32

Van Wazoner & Williams, & Beekman, N. Y. 36

Door Bolts.
Lives Hobart B., New Haven, Ct. 33

Prilling Machines, Makers of,
Boynton & Plummer, Worcester, Mass. 37

Setlers, Wm. & Co., Edila, and 79 Liderty st. N. Y. 37

Taft Geo. C., Worcester, Mass. 36

Wiley & Russell Mig. Co., Greenfield, Mass. 36

Wiley & Russell Mig. Co., Greenfield, Mass. 39

Prop Forgings. 39

Rightes. Air
Sherrill Roper Air Engine Co., 91 Wahnington,
Sherlil Roper Air Engine Co., 91 Wahnington,
Schletcher, Schumm & Co., Philadelphia. 37
Engines (Locomotive).
Baldwin Locomotive Works, Philadelphia, Pa. 6
Engines. Stram. Makers of.
Barber W. H. & Bro., Allentown, Pa. 13
Lane & Bodley Co., Cincinnati, O. 30
Lovegrove & Co., Philadelphia. 37
Shapley & Wells, Bingharaton, N. Y. 33
Wetherlil Robt. & Co., Chester, Pa., 37
Franchizer. 10

Equalizer . Bunger M. E. & Co., Indianapolis, Ind...

Faucets, Brass, Makers of.
McNab & Harlin Mfg. Co., 65 John, N. Y.
Faucets, Self-Measuring, Makers of.
Enterprise Mfg. Co., of Pa., Phile. and N. Y.
Lane Bros. Milbrook, N. Y.
Faucets, Wood Works. Lockport, N. Y.
Faucets, Wood Works. Lockport, N. Y.

Files, Importers of. Carr J. & Riley, 82 John, N. Y.... Moss F. W.. 80 John, N. Y. Files, Manufacturers of. Auburn File Works, 80 Chamber Moss F. W., 50 John, N. Y.
ilies, Manyfacturers of,
Auburn File Works, 50 Chambers, N. Y.
Barnett G. & H., 41 and 43 Richmond, Phila.
Disston Henry & Sons. Phila.
Everhart James M. Scranton. Fa
Johnson & Bro., 1 Commercial, Newark, N. J.
McCaffrey & Bro., 172 and 1734 N. 4th, Phila
Nicholson File Co. Providence, R. I.
Paul Chas. B., Williamsburgh, N. Y.
Spencer J. R. & Son, Sheffield, England.
Fire Arms.

Nicholson File Co. Providence, R. I. 32
Paul Chas, B., Williamsburgh, N. Y. 8
Spencer J. R. & Son, Sheffield, Engiand. 10
Fire Arms.
Conway T. G., co Chambers, N. Y.
Fire Brick, Makers of.
Borgner & O'Brien, Philadelphia, Pa. 32
Brooklyn Clay Retort and Fire Brick Works, Van
Dyke St., Brooklyn, N. Y. 32
Brooklyn Clay Retort and Fire Brick Works, Van
Dyke St., Brooklyn, N. Y. 32
Hall & Song, Burfalo (teburgh, Fa. 32
Hall & Song, Burfalo (teburgh, Fa. 32
Hall & Song, Burfalo (teburgh, Fa. 32
Newton & Co., Albany, N. Y. 32
Newton & Co., Albany, N. Y. 33
Neutren Henry, 418 East 23d, N. Y. 32
Newton & Co., Albany, N. Y. 33
Ostrander James & Son, Troy, N. Y. 33
Valentine M. D. & Bro., Woodbridge, N. J. 33
Valentine M. D. & Bro., Woodbridge, N. J. 33
Watson John R. Perth Amboy, N. J. 34
Valentine M. D. & Bro., Woodbridge, N. J. 34
Watson John R. Perth Amboy, N. J. 34
Filint and Emery Paper and Cloth.
Baeder, Adamson & Co., 730 Market, Phila.
Fluting Machines.
Shepard Hardware Co., Buffalo, N. Y. 35
Emptre Fortable Forge Co., Cohoes, N. Y. 37
Forundry Factings.
Paxson J. W. & Co., 514 Beech, Phila.
Whitehead Bros., sty W. 15th, N. Y.
Fry Pans.
N. Y. Stamping Co., 311 Avenue A, N. Y. 27
Furnaces, Makers of,
Richmond & Potts, 119 S. 4th, Phila., Pa. 36
Furniture Springs.
Cary & Moen, 234 W. 35th, N. Y. 34
Lefferts Marshall. to beekman, N. Y. 35

Cary & Moen, 234 W. 29th, N. Y.
Galvanized Iron,
Lefferts Marshall, op Boekman, N. Y.
Garden Tools,
Dunlap C. W. & Co., 44 Chambers, N. Y.
Enterprise Mfg. Co., Geneva, Ohlo.... Gearing.
Barber W. H. & Bro., Allentown, Pa.
Comly J., Lincoln Park, N. J.......

Pennsylvania Heating and Ventilating W. Philadelphia.

Grindstones.

Grindstones.

Wood H. S. & Co., 33 West. N. Y.

Wood Waiter R., 283 and 285 Front. N. Y.

Worthington & Sons, North Amherst, Ohio.

Gunpowder, Rakers of.

Kneeland F. L. (Duponi) D. Wall, N. Y.

Latin & Rand Fowder Co., 29 Murray, N. Y.

Hartigaa Wm. R. Burlington, Conn.

Haugers, Harn Door.

S. H. & E. Y. Moore, Chicago, Ill.

Hardware Commission Merchants.

Fernald & Sise, 100 Chambers, N. Y.

Graham & Haines, 113 Chambers, N. Y.

Heaton & Denckla, 507 Commerce, Phila.

Samuel S. L., 47 Cedar, N. Y.

Waitridge G. B., 101 Chambers, N. Y.

Waitridge G. B., 102 Cham

Lioyd, Supplee & Waiton, 625 Market, Phila. Shepard Sidney & Co., Buffalo, N. Y.

Hardware Importers.
Boker Hermann & Co., 101 Duane, N. Y.

McCoy & Co., 134 and 130 Duane, N. Y.

McCoy & Co., 134 and 130 Duane, N. Y.

McCoy & Co., 134 and 130 Duane, N. Y.

Hardware Manufacturers.

Comity Jas., 4730 Paul st., Philadelphia.

Coulter, Flagler & Co., 57 Chambers, N. Y.

Cowles Hardware Co., 101 Duanely, N. Y.

Enterprise Mfg. Co., Phila.

Greenfield Tool Co., Greenfield, Mass.

Lloyd, Supplee & Waiton, 025 Market St., Phila., Pa.

Miller's Fails Co., 1319 N. Jackson, Chicago.

Shannon J. & Sons, Sons, Market Faila.

Shannon J. & Sons, Sons, Market Faila.

Stanisly Works, New Britain, Conn.

Ticbout W. & J., 290 Pearl, N. Y.

Trenton Lock & Hardware Co., Trenton, N. J.

Union Mfg. Co., 92 Chambers, N. Y.

Van Wagoner & Williams, & Beekman, N. Y.

Hardware Specialtics.

Van Wagoner & Williams, & Beekman, N. Hardware Specialities.

American Machine Co., 1025 N. 4th, Phila. American Tool Co., 116 Chambers, N. Y. Shepard Sidney & Co., Buffalo, N. Y. Snencer & Underhill, og Chambers, N. Y. Sprague Novelty Works, Rochester, N. Y. Weeks A. A. & John, N. Y. Harness tings.

Hay K. nives. Hot Hirams & Co., East Wilton, Me. Hinges.

Hinges. Staniey Works, New Britain Conn... Stanley Works, New Enthalth Hos Ringers.
Chambers, Bering & Quinlan, Decatur, Ill.
Hoisting Engines, Makers of,
Crane Bros., Mfg. Co., Chicago, Ill.

Housettermanner of the Pierce Geo. N. Buffalo, N. Y.
Hydrants, &c. & Buffalo, N. Y.
Hydrants, &c. & Monroe, N. Y.
McLean John, doo Monroe, N. Y.
Hydrantic Jacks,
Dudgeon Richard, 42 Columbia, N. Y.
Lyon E. & Co., 470 Grand, N. Y.
Lyon E. & Co., 470 Grand, N. Y.
Lyon E. & Co., 470 Grand, N. Y.
White Mountain Freezer Co., Laconia, N. H.

1 Insurance, Boller.

28 Hartford Steam Boller Inspection & Insurance, Boller.

19 Hartford Steam Boller Inspection & Insurance, Boller.

10 Boller.

11 Boller.

12 Harty A. G., Pittsburgh, Pa.

13 Hear, Charcont, Warm or Cold Biast.

14 Harty A. G., Pittsburgh, Pa.

15 Hear, Charcont, Warm or Cold Biast.

16 Harty A. G., Co., 52 Wall, N. Y.

17 How S. B., Chattanooga, Tenn.

18 Mohr J. J., 49 Walnut, Philadelphia Richardson J. O., 232 Dock, Philadelphia Richardson J. O., 232 Dock, Philadelphia Pa.

19 Harty A. G., Philadelphia, Pa.

28 Clark E. W. & Co., Philadelphia, Pa.

29 Lee James & Co., 72 Pine, N. R.

20 Swan John E. & Bro., Glasgow, Scotland.

Williamson James & Co., 6 Wall, N. Y.

34 Iron Peaiers.

Lee James & Co., 72 Pine, N. R.

Swan John E. & Bro., Glasgow, Scotland.

Williamson James & Co., 69 Wall, N. Y.

Iron Dealers.

Abeel Frothers, 100 South, N. Y.

Bonnell, Botsford & Co., Youngstown, O. 4

Bonnell, Botsford & Co., Youngstown, O. 4

Carmichael & Emmens, 170 and 132 Cedar, N. Y. 4

Conney Daniel F., 88 Washington, N. Y. 4

Egleston Bros. & Co., 165 South, N. Y. 4

Harrison & Gilloon, 558 to 522 Water, N. Y. 4

Harrison & Gilloon, 558 to 522 Water, N. Y. 4

Harrison & Gilloon, 558 to 525 Water, N. Y. 4

Hoffman J. W. & Co., 268 S. Fourth, Philladelphia. 5

Judson B. F., 457 and 452 Water, N. Y. 4

Harrison & Gilloon, 558 to 522 Water, N. Y. 4

Kane C., Pittsburgh, Pa.

Lundberg Gustaf, 25 Kilby, Boston, Mass. 4

Middleton W. S., 25 John, N. Y. 1

Pierson at Co., 24 Broadway, N. Y. 4

Pierson at Co., 24 Broadway, N. Y. 4

Pierson at Co., 25 Wangin, N. Y. 5

Wallace Wm. H. & Co., 40 Mangin, N. Y. 5

Wallace Wm. H. & Co., 40 Mangin, N. Y. 5

Wallace Wm. H. & Co., 40 Mangin, N. Y. 5

Wallace Wm. H. & Co., 40 Mangin, N. Y. 4

Wilson, R. A. & Co., 19 Hangin, N. Y. 4

Wilson, R. A. & Co., 19 Hangin, N. Y. 4

Wilson, R. A. & Co., 19 Hangin, N. Y. 4

Iron, Manufacturers' Agents.

Cox, 17, Justice & Co., 80 Wallut, Phila. 5

Levis Henry & Co., Philadelphia, 7

Albany & Hensselaer Iron & Steel Co., Troy N. Y., 36

Bradley, Reis & Co., 10 Walnut, Phila. 5

Levis Henry & Co., Philadelphia, 7

Fron, Manufacturers' Agents.

Cox, 17, Justice & Co., 10 Walnut, Phila. 5

Herold Reise, 10 Walnut, Philadelphia, 7

Proman Andrew, Pittsburgh, Pa. 4

Kirkpatriek, Beale & Co., 10 Ceveland, Ohio, 6

Burden Iron Works, Troy, N. Y. 6

Rowland James & Co., 60 C., Pittsburgh, Pa. 4

Kirkpatriek, Beale & Co., 10 Ceveland, Ohio, 6

Burden Iron Works, Troy, N. Y. 6

Rowland James & Co., 20 N. Deiaware ave, Phila, 8

Shoenberger & Co., 21 Kitsburgh, Pa. 4

Hospital Reise, 20 Ceveland, Ohio, 6

Rowland James & Co., 20 N. Deiaware ave, Phila, 8

Shoenberger & Co., 21 Kitsburgh, Pa. 4

Harden & Boglia, Cheveland, Ohio, 6

The Fassar

Williams, Long & McDowell, Pittsburgh, Pa. Wood Alan & Co., 510 Arch Philadelphia. Zog & Co., Pittsburgh, Pa. Iron, Planished Sheet. Massafacturers of Wood W. D. & Co. Pittsburgh, Pa.

Jron, Pinnished Sheet, Manufacturers of Wood W. D. & Co. Pittsburgh, Pa.
Jack Screws.
Jack Screws.
Jack Screws.
Jack Screws.
Jacks. Lifting.
Dinsmore Mg. Co.. 23x Washington, Boston.
Linterns. Manufacturers of.
Linterns. Manufacturers of.
Did R. E. Giand of Fulton, N. Y.
Luthes.
Johnson, Jr. Israel H. & Co., Philadelphia.
Leveling Instruments.
Bicknell & Comstock, 27 Warren, N. Y.
Levels, Manufacturers of.
Bothson, Manufacturers of.
Bothson Mison, Broadway and Kossuth, BrookIvn, E. D. Wolf, 10t S. Sti, Philadelphia.
Bicknell & Comstock, 28th, Philadelphia.
Socked, Manufacturers of.
Bothson Manufacturers of.

N. Y. Handle and Mallet WOTES, 440 E. HOUSEON. 15
Penfield Block Works, Lockport, N. Y. 25
Manganese.
Pyrolusite Manganese Co., 55 Cliff, N. Y. 35
Mechanics' Tools.
Jennings C. E. & Co., 95 Chambers, N. Y. 38
Measuring Tapes.
Eddy Geo. M. & Co., 33 Classon Ave., Brooklyn, N. Y. 25
Meat Chooping Muchinery.
Murray Iron Works, Burlington, Iowa. 21
Metals.
Dickerson, Van Dusen & Co., 29 and 31 Cliff, N. Y. 2
October O. W. & Co., cor. Cliff and Beekman, N. Y. 4
October O. W. & Co., cor. Cliff, Det. John & Fulton, N. Y. 2
Pholps, Dodge & Co., Cliff, Det. John & Fulton, N. Y. 2
Pholps Dodge & Co., Cliff, Det. John & Fulton, N. Y. 2
Pholps Dodge & Co., Cliff, Det. John & Fulton, N. Y. 2
Pholps Dodge & Co., Cliff, Det. John & Fulton, N. Y. 2
Pholps Dodge & Co., Cliff, Det. John & Fulton, N. Y. 2
Pholps Dodge & Co., Cliff, Det. John & Fulton, N. Y. 2
Pholps Dodge & Co., Cliff, Det. John & Fulton, N. Y. 2
Pholps Dodge & Co., Cliff, Det. John & Fulton, N. Y. 2
Pholps Dodge & Co., Cliff, Det. John & Fulton, N. Y. 3
Schoenberg Metal Mfg. Co., 418 E. 19th, N. Y. 3
Start John Halifax, Nova Scotia.

Metallurgists.
Roch, Garrett & Blair, 410 Chant, Philadelphia. 5

Starr John. Hanrax, Nova Scots.

Metallurgists.
Booth, Garrett & Blair, 19 Chant, Philadelphia.
Sritton J. Biodgett, 23 Walnut, Philadelphia.
Sritton J. Biodgett, 23 Walnut, Philadelphia.

Minera' Candles, Makers of,
James Boyd's Sons. 10 and 12 Franklin, N. Y.

Mineral Wool.
Elbers Alexander D., 26% Broadway, N. Y.... Molding Sand. Whitehead Bros., 517 W. 15th, N. Y.

Wintenead Bros., 47 W. 14th, N. Y... Mouse Traps.
Dietz R. E., 54 and 55 Pulton, N. Y...
Oliver E., 105 and 105 Beekman N. Y.
Ripley Mfg. Co., Unionville, Conn...

Oliver E., 105 and 105 Beekman N. Y.

Stipley Mg. Co., Unionville, Com.

Nalis.

Fuller Bros. & Co., 139 Greenwich, N. Y.

Oxford Iron Co., 51 Washington, N. Y.

Oxford Iron Co., 51 Washington, N. Y.

Oxford Iron Co., 51 Washington, N. Y.

Bowland Jas. & Co., 205 N. Delaware, Ave., Phila. S.

Schoenberger & Co., Pittsburgh, Pa.

Schoenberger & Co., Pittsburgh, Pa.

Nali Machinery.

Pittsburgh Mg. Co., Pittsburgh, Pa.

Sickel Platers' Supplies.

Condit, Hanson & Van Winkle, Newark, N. J.

Zucker & Levett, 6:a and 6:a W. cist. N. Y.

Stypers.

Interchaspeable Tool Co., of New York.

Swippers.

Interchaspeable Tool Co., of New York.

Swippers.

Rowland Wm & Harvey, Frankford, Philadelphia, 36

Note. Broker.

Gallaudet P. W., 3 and c Wall, N. Y.

Natis, Bolts, etc., Makers of,

Allentown Rolling Mill Co., Allentown, Pa.

Haskell W. H. & Co., Pavtucket, R. I.,

Standard Nut Co., Pittsburgh, Pa.

Sternbergh J. H., Reading, Pa.

501 Stornes.

Boyd & Chase, north and Harlem River, N. Y.

Oil Stones. Boyd & Chase, 107th and Harlem River, N. Y.

Oli Stones. St. Reading Fa. 38

Boyd & Chase, 207th and Harlem River, N. Y. 39

Chester Iron Co., 407 Walnut, Philadelphia. C. Read, D. W. R. & Co., 205} Walnut, Philadelphia. C. Read, D. W. R. & Co., 205} Walnut, Philadelphia. C. Read, D. W. R. & Co., 205} Walnut, Philadelphia. C. Read, D. W. R. & Co., 205} Walnut, Philadelphia. C. Read, D. C. & Co., Cleveland, O. 23

Parter Steel. Bottone Smelting Co., 2038 Washington Pens, Steel. Esterbrock Steel Pen Co., New York. 32

Phosphor Bronze. Smelting Co., 2038 Washington Phosphor Bronze. Finding Co., 2038 Washington Planes. Beaty Daniel F., Washington, N. J. 32

Planes Fittings. etc., Makers of, Pierson & Co., 24 Broadway, N. Y. 9

Piese. Fittings. etc., Makers of, M. W. Sterley, M. W. W. M. M. M. W. M. M. W. M. M. M. M

Retrinsa Panch & Shear Co., 52 Dey. N. 7

Feerless Panch & Shear Co., 52 Dey. N. 7

Frunera, Tree.

Lee E. & Co., Rochester, N. Y. 13

Pulleys.

Brown A. & F., 57 Lewis, N. Y. 36

Oesterline W., Cincinnati, Ohio. 31

renfield Block Works, Lockport, N. Y. 25

Providence Tool Co., Providence, R. I. 34

Pumps, Makers of,

Acid Funn & Siphon Co., New London, Conn. 21

Douglas W. & B., Middletown, Conn. 27

Powell & Douglas, Walkegar, III. 3, 1083;

Rumsey & Co., Seneca Falls, N. Y. 51

Rumsey & Co., Seneca Falls, N. Y. 57

Rails, Irou and Steel, Makers of,

Cambria Irou Co., Johnstown, Pa.

Cieveland Rolling Mill Co. Cleveland, Ohio. 30

Nixon Brox., Newasatic-on-Tyne, England. 16

The Edgar Thomson Steel Co., 57 Broadway, N. Y. 31

Retter Wm., of Wm., Baltimore, Md. 39

Grundy Geo. C., 165 Greenwich, N. Y. 17

Townsend W. P. & Co., Pittaburgh, Pa. 13

Rock Brenkers.

Blake Crusher Co., New Haven, Conn. 24

Gartson A. & Co., Pittaburgh, Pa. 6

Rolls Grinding Marchines. 13

Rock Brenkers.

Blake Crusher Co., New Haven, Conn. 24

Gartson A. & Co., Pittaburgh, Pa. 6

Rolls Grinding Marchines. 14

Rolls Grinding Marchines. 25

Horone Co., Wilmington, Del. 35

Roll Grinding Marchines. Challant Mfg. Co., 69, Philadelphia. 6

Enterprise Mfg. Co., Philadelphia. 6

Enterprise Mfg. Co., Philadelphia. 6

Enterprise Mfg. Co., Philadelphia. 6

Rules, Manufacturers of
Stanloy Rule and Level Co., 29 Chambers, N. Y. ... 10
Stanloy Rule and Level Co., 29 Chambers, N. Y. ... 10
Chalfant Hg. Co., 435 Arch, Philadelphia. ... 6
Chalfant Hg. Co., 29 Chambers, N. Y. ... 23
Enterprise Mg. Co., Philadelphia. ... 23
Band and Emery Paper, Mackers of.
Band and Emery Paper, Mackers of.
Band and Emery Paper, Mackers of.
American Saw Co., Trenton, N. J. ... 34
Boynton E. M., 80 Beckman, N. Y. ... 34
Disston Henry & Sons, Phila. ... 25
Gerlach Peter & Co., Cleveland, Ohio. ... 25
Gerlach Peter & Co., Cleveland, Ohio. ... 31
Wheeler, Madden & Clemsen Mg. Co., Middle-town, N. Y. ... 34
Phila. ... 34
Trump Bros. Machine Co., Wilmingson, Del. ... 12
Scales. Manufacturers of.
Charlion John & Sons, of Cliff, N. Y. ... 11
Eves Seale Co., Rutland, Vt. ... 11
Crews, Makers of.
Miles F. S., 20 Quarry, Phila. ... 13
Philadelphia Screw Co., Philadelphia, Ps. ... 25

Screw Cutting Machinery.
Wiley & Russell Mig. Co., Greenfield, Mass...
Screw Drivers, (Improved) Makers of
Disaton Henry & Sons Phila Screw Drivers, (Improced) Makers or Disston Herry & Sons Phila 22.

Scythes. Beardslev Scythe Co., West Winsted, Conn. 22.

Scythe Stones. Pike A. F. East Haverbill, N. fl. 22.

Scythe Stones. Pike A. F. East Haverbill, N. fl. 22.

Scythe Stones. Pike A. F. East Haverbill, N. fl. 23.

Second Hand Machinery. Forsaith S. C. & Co., Manchester, N. H. 35.

Shofting. Makers of. Shofting. Makers of. Shofting. Makers of. Shofting. Makers of. Shorting. Shor

Ostrander W. R., 19 Ann. S. Pepffer.
Manning & Squier, 113 Liberty, N. Y.
Osgood F. & Co., Bergen Port, N. J.
Spiegeleisen.
Wright Peter & Sons, 52 Broadway, N. Y. Rogers Wm. & Son., Hartford, Ct....

Wardlow S. & C., Sheffield, England.

Steelling.
Bauer & Co., of Greenwech Ave., N. Y.

Steel Spiral Springs, Manufacturers of.
Cary & Moen, 23 W. 29th, N. Y.
Chatilion John & Sons, 91 and og Cliff, N. Y.

Stocks and Dies.
Armstrong F., Bridgeport, Ct.
Holroyd & Co., Waterford, N. Y.
Holroyd & Co., Waterford, N. Y.
Holroyd & Co., Waterford, N. Y.

Stove Boardis, More Co., Chicago
Ansonia Brass and Copper Co., 19 and 21 Cliff, N. Y.

Shepard Sidney & Co., Buffalo, N. Y.

Shepard Sidney & Co., Buffalo, N. Y.

Shove Trucks.

Post C. C. Burningson, Tgck86, American Tack Co., Fairhaven, Mass. Dunbar, Hobart & Whidden, 39 Warren, N. Y Field A. & Sons, Taunton, Mass. Grundy Geo. C. 165 Greenwich N. Y. Shelton & Co., Birmingham, Ct. Moteaf, Paul & Co. Pittsburgh, Pa...

Moteaf, Paul & Co. Pittsburgh, Pa...

Tools, Steum and Gas Fitters.

Saunders' Sons, Youkers, N. Y.

Traps, Sirem.

Tyelch & Lawson, 176 Center, N. Y.

Bucc Geo. W., 1 Platt. New York.

Try Squares, Beyels, &c., Makers of.
Disston Henry & Sons, Phila.

Tube Expanders,

Dudgeon Richard, 24 Columbia, N. Y.

Tubing. Wheels, Railrond.

Whitney A. & Sons, Philadelphia.

Whitney A. & Sons, Philadelphia.

Brooklyn White Lead Co., So Maiden Lane N. Y.

Colyade Robert & Co., So, Pearl, N. Y.

Lewis John & Sons, 82 Front, N. Y.

Lewis John & Sons, 82 Front, Phila., Pa. 12

Window Baiances.

Hugunin Robt, B., Wethersfield, Conn.

Window Springs, Makers of.

Hammond W. S., Lewisberry, Pa. 12

Wire, Januyacturers of.

Cary & Moen. 24 W. 20th, N. Y.

Cleveland Rolling Mill Co., Cleveland, Ohio. 10

Felton & Guilleaume, Carlswerk, Germany 2

Gantier Steel Co., 1cd., Johnstown, Pa. 2830

Gilbert & Bennett Mig. Co., 273 Pearl, N. Y. 7

Grinwold J. Wood, Troy, S. Y.

Harrison & W. Co., Holyoke, Mass 1

Trenton Iron Co., Trenton, N. Y.

Washburn & Moen Mig. Co., Worcester, Mass 2

Wire Drawing Machinery.

Add John, New Haven, Ct. 36

Wire Goods, Manufacturers of.

Dufur & Co., 58 N. Howard st., Baltimore, Md. 3

Gilbert & Bennett Mig. Co., 273 Pearl, N. Y. 7

Oliver & Co., 58 N. Howard st., Baltimore, Md. 3

Gilbert & Bennett Mig. Co., 273 Pearl, N. Y. 7

Oliver E. 105 and 105 Beekman st., N. Y. 7

Oliver E. 105 and 105 Beekman st., N. Y. 7

Wire Nalls.,

Sugar Bucket and Hanger. Post C. C., Burlington, Vt.....

ZUCKER & LEVETT, NICKEL PLATERS'

Estimates for Complete Outfits Furnished. 639 & 641 West 51st Street, New York.

ENTERPRISE Mfg. CO. of PA.

PATENTED HARDWARE MANUFACTURERS & IRON FOUNDERS, THIRD and DAUPHIN Sts., PHILADELPHIA.

New York Branch House with DURRIE & McCARTY, 97 Chambers Street. MAIT UNTIL NEXT TUESDAY HANLET I WANT TOGO DOWN Mrs. Pott's IRONS. 1 - 8

HAMLET. SPECIALTIES.
Enterprise Patent Cold Handle Bouble Pointed SMOOTHING & POLISHING IRONS
CHAMPION TORACCO CUTTERS

CHAMPION TORACCO CUTTERS. CHAMPION TOBACCO CUTTERS, PATENT MEASURING FAUCETS. SELF-WEIGHING CHEESE KNIVES,

OPHELIA (12) SCENEFROM HAMLET. SPECIALTIES. AMERICAN FRUIT, LARD and JELLY PRESSES, CHAMPION DRIED BEEF SHAVERS, Coffee Ronsters, Bung-Hole Borers,



EMPIRE FORGES IMPROVED without Belts, Bellows, Crank Pins, Dead Certer or Back Motion. Send for circular. EMPIRE PORTABLE FORGE CO. CCHOES, N.

Annual Review of the British Iron Trade of 1879.

(From Our Own Correspondent.) The state of the iron trade and its allied industries during the year which is now near its close has been in many respects eventful, and attended with changes of eventful, and attended with changes of greater direct and relative importance than several of its predecessors. At the commencement of 1870 the statistical and general position of this greatest of British industries was in all respects bad, and to the eye of the keenest observer the outlook was one of unrelieved gloom and great anxiety. Abroad, as well] as at home, more iron was being produced than was required by the actual consumers; prices were unprecedentedly low, accounts difficult of collection, and scarcely a single person could be found who indulged in the hope of an early or even distantly prospective revival. Ironmasters in all directions found it most difficult to keep themselves above water, financially speaking, which feat, in scores of instances, they only contrived to accomplish by continuing to produce rather than allow their they only contrived to accomplish by continuing to produce rather than allow their plant and machinery to become idle. They found it better, in fact, to make iron even at a slight loss than to set down their furnaces and let their expensive appliances rust by total disuse. By this very course of action they undoubtedly hindered the prospect of any revival of trade or rise of prices, inasmuch as they only sold a limited proportion of their production, while the remainder served to add to the already overgrown stocks, either in the official stores of Scotland and the North of England, or in makers' own yards elsewhere. They thus helped to defeat the object they at heart most desired, but the circumstances of the case and the defeat the object they at heart most desired, but the circumstances of the case and the needs of each maker were such that the general good was perforce lost sight of, in view of the necessity which so urgently pressed upon the individual.

Everything favored cheaper production than had ever before been known or heard of, yet the market did not budge a single step, and it was most difficult to dispose of

of, yet the market did not budge a single step, and it was most difficult to dispose of even a moderate portion of the iron made. Competition was keener than ever before, and venders were driven to all kinds of desperate shifts in order to convert their manufactures into ready money. Buyers, who were few in number, and who required but small lots, were more completely masters of the situation than at any previous juncture, naturally fostered every available means of competition among the makers, who were not merely struggling among themselves, but were in many instances actually undersold by merchants or other middlemen, who looked only to the wants of the moment, and had no regard whatever to their future occulooked only to the wants of the moment, and had no regard whatever to their future occupation or reputation. In this way, and by these means, comparative chaos reigned during the earlier part of the year, and it was some little time before failures and other powerful causes thinned the ranks of the competitors and reduced the competition within more reasonable limits. By the time the year had got thoroughly "on its legs" the condition of many of our leading iron-making districts had become exceedingly bad, particularly South Staffordshire, where more than three-fourths of the furnaces were set down, and where comparatively more than three-fourths of the furnaces were set down, and where comparatively few of the once busy mills and forges were in operation. The North of England, Yorkshire, Derbyshire, Lancashire, Wales and parts of Scotland were not in so deplorable a plight, but there was everywhere the evidence of the utmost depression and a general stagnation which nothing appeared able or likely to relieve. As with the iron trade proper, so with its allied industries, all of which were at the lowest possible ebb. The few orders for machinery, &c., which now and again made their appearance were literfew orders for machinery, &c., which now and again made their appearance were literally sent "all round the country," and makers frequently received inquiries for the same article, required for one order only, from a dozen of the houses they supplied. In this way the cares of business were vastly increased, and there were loud complaints not only as to the actual paucity of orders, but also of the trouble of securing and dealing with those really put forward.

This was virtually the state of affairs throughout almost every branch of the trade during the whole of the earlier part of 1879, and it was not until the advent of spring that any change became apparent. Even then the alteration was principally confined to one department—the steel-rail mills. There had previously been symptoms of growing activity in this respect, but it was not until April that the news respecting

was not until April that the news respecting Mr. Vanderbilt's American orders for English rails directed closer attention to the matter. It was then suspected that the if such were the case it could only be a question of time for an important improvement to be felt on this side. In the long run that surmise proved to be true, seeing that during the whole of the autumn the rail mills of this country have been well engaged, and are now understood to be well sold forward. This is evidenced by the course of prices, which have gone up from the £4 and £4.6/ per ton of March last, to £7 and £7. 10/ at the present time. The different departments subsidiary to the rail mills have naturally benefited in proportion. Hematite pigs, for instance, which were selling at 56/ to 60/ a year ago, have never ceased to rise since midsummer, and are now scarce and firm at £4. 17/6 and £5. As regards the iron trade proper, the revival, regards the iron trade proper, the revival, of which so much has been written and said of which so much has been written and said of late, was not generally expected or realized until some time after the comparative prosperity of the rail mills had begun to be noticeable. There were some few old practised observers, it is true, who scented the approach of the American "boom," and who, even prior to midsummer, made preparations for taking the tide at its flood. Such, however, was not generally the case, and it may safely be stated that the news of the remarkable briskness of the iron trade of the United States, which reached us in August, came upon the iroumasters. and it may safely be stated that the news of the remarkable briskness of the iron trade of the United States, which reached us in August, came upon the ironmasters, &c., of this country in the light of a revelation. From that time to this there has been no looking back, but a general groward average prosperity, in the absence of inflet tion. From that time to this there has been been average prosperity, in the absence of infla-march.

The members of the trade seemed all at The members of the trade seemed all at once to take heart, and to pull themselves together in one great effort to extricate themselves out of the Slough of Despond in which they had so long been plunging. At the first the glad tidings from the West seemed too good to be true. People sagely shook their heads, and asked for better evidence they more hearsey. They had not shook their heads, and asked for better evidence than mere hearsay. They had not long to wait. Firms in Glasgow received orders for Scotch pig iron in considerable quantities. Warrants suddenly became urgently wanted, and they, with makers' brands, rapidly rose from 40/ and 41/6 to 66/ and 67/6. Middlesborough naturally caught the infection, and not merely sent caught the infection, and not merely sent up quotations in sympathy with the enhanced rates declared on the other side of the border, but also decided to ship trial lots of Cleveland pig to the United States. Elsewhere the effect was contagious, and inquiry revealed a far greater and more widespread change than had been suspected. Hematites and other pigs were absolutely scarce for the time being, for it was not until a further period had elapsed that furnace owners and others felt justified in extending their means of production. Crude irons being thus at a premium for the moment, attention was directed to the alternative of purchasing scrap and old rails, especially by those who had American commissions to buy. The effect of this, too, was naturally to send up prices, and not only so, but to clear off vast quantities of old materials which had been accumulated by railway companies and others. Such a clearance was of itself an important factor in the curse of business, for it was borne in mind that we also use a good deal of scrap iron, and that in its default pig iron must be resorted to.

The blast furnace owners—particularly

The blast furnace owners—particularly

Typical the same remark applies, and it has even greater force as regards the South Staffordshire district. In the last named locality the output within the next hree months will be at least treble that of any quarter of the present year, so that it will need a very marked growth of the demand to sustain prices and prevent the occurrence of a collapse. The finished iron trade is better, because in those branches the stocks are probably very small in all directions; hence the wants of consumers must needs be felt by makers as soon as they have been made known. All things considered, the iron trade may be assumed to be in a fairly satisfactory condition at present, although it is not so decidedly strong as some would have us believe. There may be some little hesitation during the next few weeks on the part of buyers, but I am under the impression th orted to

The blast furnace owners—particularly those of the North and of Scotland—were not slow to perceive and utilize their advantage. They sent large lots of iron into the official stores in order to get warrants for them, and those securities they sagaciously negotiated in the market on terms which left them fair profits, without at the same time seriously damaging their own utilimate interests. These gentlemen saw the inevitable tendency of things, but a number of speculators of all sorts and sizes, whose acquaintance with iron was of the crudest possible kind, rushed in, and by bidding against each other, quickly sent up quotations into the sixties of shillings. The fever definite and fuller acquaintance with the sax twants of America. The speculators were mostly weak-kneed gentlemen who could not afford to wait, and who took fright at the first cold breath of reason which reached them. They were glad to clear out at almost any price, and their frantic efforts in that direction for a time caused a new depression of the Scotch market. A comparatively good revival ensued, when the large shipping returns were published weekly, but for the most part quotations have since been more regular, and "spasms" have been few and far between. In the meantime smelters of the most part quotations have since been more regular, and "spasms" have been few and far between. In the meantime smelters of the hopeful ones, in doing which they were presently supported by the augmented wants of the finished iron producers, some of whom had in Scotland—was 679, 503 tons in makers' own yards. The production of the year had been 902,000 tons from an average of 90 furnaces. The sacct statistics for the whole of 1879 will to the time the following forecast will be approximately accurate:

Tons.

Make of Scotch pig during 1870, say ... \$00,000 Scotch The blast furnace owners—particularly those of the North and of Scotland—were not slow to perceive and utilize their advantage. They sent large lots of iron into cotton ties, &c., while others were supported by additional calls from the tin-plate houses for sheets, &c. In this case activity clearly

for sheets, &c. In this case activity clearly begat activity.

The merchants, retailers and other home buyers beginning to be apprehensive that the revival was, after all, real, gave out orders long held in abeyance, or bought in advance of their actual requirements, with an amount of unanimity which proved at once the lowness of stocks and the general fear of another period of inflation. What has happened since is a matter of current history, and has found it place weekly in my letters. Marked iron has gone up to £5 per ton, and the leading list houses have withdrawn all quotations preliminary to a further rise to £9, or even £10 at the forthcoming quarterly meetings. All other descriptions of iron are dearer in proportion, even common bars having moved up from £5. 10/ to £7. 10/ per ton. Galvanized iron is £3 to £4 dearer, partially owing to the movement in sheets and partly by reason of the largely increased value of spelter. Tin plates are 30 to 50 per cent. higher than they were a year ago, and appearances are decidedly against the prospect of any downward movement. Stamped and other hardwares, wholly or partly composed of iron, are daily showing less discount; while articles into the composition of which tin, copper, or the other metals proper enters more or less largely are equally enhanced in per, or the other metals proper enters m less largely are equally enhanced values. To give a mere enumeration of the American manufacturers were unable to effect early deliveries, and it was seen that if such were the case it could only be a would be tedious and tiresome. I have, therefore, adopted another course, which, for purposes of comparison, will no doubt prove equally interesting and useful to to the trade. The year is closing un-der far more favorable conditions than der far more favorable conditions than could possibly have been prophesied twelve or even six months ago. At the present time there is employment, which may be termed ample, in almost every branch. Furnaces, forges and mills, which have been disused for two or three years past, are again being made ready for being reworked. Prices are rising in all direct reworked. Prices are rising in all direc-tions, and manufacturers' order books are understood to be almost universally well supplied. Our foreign trade shows to great advantage, as compared with the statistics relating to it at the beginning of the year, and our home business—in spite of the bad harvest-is on a very considerable scale These are all favorable conditions, and may lead up to splendid future results, provided we are content to conduct our operations as men of business who have to live in the fu-ture as well as in the present, and not merely act as speculators who care nothing for the time to come so long as the time

The completed statistics for 1879, when available, will not only show a marked increase in the production of almost all kinds of iron, particularly pig, but they will also reveal the existence of heavy stocks in Scotland veal the existence of heavy stocks in Scotland and elsewhere, which must necessarily be taken into account in any calculation as to the course of prices during next spring. With over 300,000 tons in Connal's stores, and a large tonnage (probably over 400,000) in makers' own yards, Scotch pig does not seem likely to experience any great immediate advance, particularly when it is remembered that the production in that country is by no means up to its full extent. In Cleveland, too, the same remark applies, and it has even greater force as regards the

At the beginning of the year the pig iron on hand in Scotlad was 679,000 tons, of which 199,417 tons were in Connal's stores,

ti-	be approximately accurat	e :				_	
he	Stock on January 1, 1879, office	sia	1		8	79,	ns. 000
99		791	on	icuat	3	52,	975
est	Total				1,7	31,	975
a-	Stock in Connal's stores, Dec.	20	8x ,c	79, 88 y			000
er	Exports to Dec. 20, 1879, say Malleable iron made in Scotla	md			3	50,	000
re	Sent to England by rail, say	aru	,	y	-	75,0	
he	Stock in makers' own yards,	POI	igh	ly	4	39.	
rs			-		_		_
ho	Total	0			1,7	31,9	75
ht	PRICES IN DECEMBER, 1878, A	NE	JA	NUART.	18	79.	
ch				. D.		-0	
ut	Pig Iron, No. 1.			879. De	0	8.	79.
ta	Scotch warrants	-	-	6	-	10	0
0-	Gartaherrie			. 0	3	-9	ě
-	Coltness			6	3	-8	0
n-	Summerlee			0	3	5	6
ζe	Glengarnock			0	3	3	0
at	Eglinton	3	3	0	3	3	0
n	Middlesborough, G. M. B.						
W	No. 1 Foundry	1	18	6	3	1	6
rs.	No. 2 Foundry	1	17	0	3	0	0
it	No. 3 Foundry		15		2	4	6
	No. 4 Foundry		14		3	3	0
g	No. 4 Forge	1	14	0	8	5	0
e	Cleveland Finished Iron.						
m	Bars, common, ordinary sizes	5	5	0	7	0	0
_	Bars, best	6	0	0	8		0
1.	Ship plates	5	82	6	8	0	0

g		. :	1 14	0		8	5
e							
n			5			7	0
3	Ship plates	. 1	12	6		8 0	0
d	Angle, T and bulb iron	. !	5 5	0		7	
s	Angle, T and bulb iron. Rails, heavy. Rails, light		5	6		6 8	
y	Hematite pigs	3	17	6	-	7 6	
0	Middlesborough Castings.						
t	Cast girders	4	7	6	- 1	5 80	9
t	Cast-iron chairs, ordinary Cast-iron pipe, 1% to 2% in	4	12	0	-	3	5
h	Staffordshire Iron.	4	-3				,
t	Common bars	6	0	0	-	8 6	,
i	Medium bars	- 6		0	8	8 3	5
t	Branded bars	7	10	6		9 11	
t	Messrs, Barrow's					ES	
1	Rivet iron	7	25	. 0	30	0	
3	Angles and buibs Nail rods, common	6	10	0		7 25	
9	Nail rods, best	7	10			10	
L	Hoop iron, ordinary	é	10			0	
-	Welah Iron.						
-	Bars, common	5	10	0	- 2	10	
1	Bars, medium	6	10	0	8		
L	Bars, good Bars, puddled	3	10			. 0	
1	Bessemer Steel.	-					
1	Sheets, ordinary	18	9	0			
	Rails, ordinary	5	5	0	Z	IS O	1
			9	0	0	0	
	Rylands' Warrington Wire.						
1	Charcoal wireper bdl. Tinned wire						
1	Coppered wire	0	0	0	0	3	- 5
1	Coppered wire	0	8	0	0	13	0
1	Wire,						
1	Drawn fencing, No. 6, oiled,			_		-	
1	f.o.bper ton,	30	15	0	10	5	0
1	Ditto, No. o. ditto	IS	10	0		10	0
1	Galvanized, No. 6 "	13	10	0	14		0
1	f.o.b	85	IO	0	15	5	0
1	per cwt	0	14	0	0	14	9

Ditto, No. 8, ditto	FO	1.5	0	
Ditto, No. 9, ditto "	X3	10	0	
Galvanized, No. 6	13	10	0	
	85	NO	0	
Fencing staples, kegs extra,				
per cwt		14	0	
Ditto, galvanized per cwt.	X		0	
Belgian nail rods, in Thames.	5	0	0	
Ditto bars, ditto	5	0	0	
Ditto girders, ditto	7	30	0	
Copper in London (21/4 dis.	for	CIM	h).	
Sheets and sheathing	6g	0	0	
Tough cake and ingot	63	IO	0	
Best selected ingot	65	0	0	
Burra Burra		0	0	
Tin.				
English block or ing't, per ton,	64	0	0	
Ditto bars "	66	0	0	

English block or ing't, per ton,	64	0	0	
Ditto bars "	66	0	0	
Ditto refined block or ingot,				
per ton	68	0	0	
Fine Straitsper ton,	56	10	0	
Banca	63	0	0	
Fine Australian	57	0	0	
Tin Plates.				
Best charcoal, I. Cper box,		0	0	
Second quality	0	18	0	
Best coke "		37	0	
Second quality "		10	0	
Lead.				
English pigper ton,	14	17	6	
Sheet and bar "	16	27	6	
Pipe	IQ	0	0	
PAIGHT SHUL	30	5	0	
	30	ED	0,	
White	24	ZO.	0	

Spelter. sian and Rhenish..per ton, 18

Genuine ground.....

Quicksilver.....per bottle.

One Organization!

One Management!

One Interest!

VOLUMES ISSUED QUARTERLY.

Constant Revisions and Prompt Notification to Subscribers.

BRADSTREET'S

IMPROVED

Mercantile Agency.

The Forty-eighth (January) Volume of Reports is now ready for delivery.

We spare no effort to make our work complete, comprehensive and reliable in all its features, and endeavor to anticipate the wants of our patrons. Many improvements have been recently incorporated which have never appeared in any Commercial Reports. The compilation of the Collection Laws, which we have printed under the State headings, has been made by representative attorneys, and may be relied upon. This feature will be appreciated by all who have occasion to grant credits covering different sections of the country. Inasmuch as our books are published quarterly, we are able to give any amendments to these laws down to the very latest date.

We have also introduced under each town or village head concise information, showing its actual or relative position-whether on a railroad, steamboat, or stage route-the population, and whether a telegraph, express, or money-order office, and if without a bank or banker, the nearest place where collections can be sent. As a Shipping as well as Collection Guide, this will be almost invaluable, it being more comprehensive, and we intend that it shall be more reliable, than any published otherwise. We have also tabulated the Banks and Bankers throughout the United States and Canada, giving their capital, &c., as well as their New York correspondent, which we shall publish as an appendix to each volume, retaining, however, the names as they appear at present under their respective town or city in the regular volume.

From the commencement of the business, more than thirty years ago, down to the present day this Agency has never for an hour failed to fulfill its contracts with subscribers, and its volumes of Reports have been issued with a regularity and punctuality as positive as the return of the day of the week and the month of the year. It has survived the severe and unjust criticisms of those who had no confidence in the system or in its ability to do what was claimed for it, as also the aspersions of jealous competitors, while its pronounced success is the best evidence that it has fulfilled the purposes for which it was established.

It has been from its inception the progressive Agency of the land, but especially since it came under its present management has it made rapid strides, always endeavoring to anticipate the wants of the mercantile community. Having no entangling alliances, owning and controlling its vast business in all its ramifications, it is presented to the commercial world to-day as the best exponent of a system which the peculiar characteristics of the country and people have made a necessity.

Relying solely on the merits of our work, we respectfully solicit an examination of our system, with the assurance of our ability to substantiate all we claim, and with the knowledge that it is worthy of the earnest consideration of every grantor of credit.

CHARLES F. CLARK, President.

HENRY DISSTON & SONS

KEYSTONE SAW, TOOL,



STEEL and FILE WORKS,

FRONT AND LAUREL STS., Philadelphia.

BRANCH WORKS: Tacony, Pa.; Chicago, III.

We desire to call attention to the improvement in putting up our goods, substituting boxes for paper covering. This will prove a great advantage to the dealer, saving the time consumed in untying and tying, also keeping them in better condition.

The new style Box here shown is our latest. We have been putting up the No. 76 D-8 and No. 120 Saws in boxes containing one-third of a



We have decided to put up all the saws marked

Disston" in this manner. The boxes will contain \frac{1}{8} dozen, and be assorted

of each size teeth in a box

We will send all of the same size teeth in a box, if so ordered.

Henry Disston & Sons.

AUSABLE HORSE NAILS, Twisted, Bent and Drawn

Hot Forged and Cold Hammered Pointed,

Are the only Nails in market that are made in imitation of the Hand Process. They have the uniformity of Machine Nails and the toughness of those hammered by hand Our

HOT FORGED AND COLD HAMMERED POINTED NAILS Are the Standard Nails,

and are acknowledged to be the best in the market. They are used by the best shoers in New York, Brooklyn, Philadelphia, Chicago, Saint Louis, Milwaukee, Baltimore, &c., and

GENERALLY THROUGHOUT THE UNITED STATES.

They also compete successfully in Foreign Countries with machine and hand-made Nails of their

AUSABLE HORSE NAIL CO.,

4 Warren St., New York.



WM. H. HASKELL & CO., Pawtucket, R. I.

MANUFACTURERS OF



ALL KINDS OF Machine and Plow Bolts, FORGED SET SCREWS,



Bemis & Call Hardware & Tool Co.

PATENT COMBINATION WRENCH.

For Circulars and Price List, addre

BEMIS & CALL HARDWARE & TOOL CO., Springfield, Mass.

ron and Brass Wood Screws.



IRON AND BRASS SCREWS.

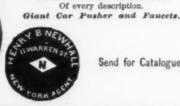
Quality, finish and tests as to strength, guaranteed equal to any With improved facilities and largely increased capacity for production, we can fill orders promptly, and invite inquiries for

Philadelphia Screw Co., Limited, Twelfth and Buttonwood Streets,

PHILADELPHIA.

Penfield Block Works, LOCKPORT, N. Y., Wrought Iron and Wood Shell

Steel Roller Bushings, and Roller Bushed CARPENTER MALLETS



Send for Catalogue.



DAVID WILLIAMS.

83 Reade Street, New York.

Any Book published in this country will be mailed, postpaid, at publishers' prices, to any address in the United States or Canada. Foreign Books will be mailed, postpaid, at importers' prices, to any address in the

Orders and inquiries by mail will receive careful and prompt attention. LIST OF TECHNICAL BOOKS SPECIALLY SELECTED FOR THE DIFFERENT INDUSTRIES.

CHAPTER I.—Hygiene in the Practical Relations to Health.

H.—Sewer Gas.

H.—Water Closets.

V.—Water Closets.

VI.—Service Pipes and Water Service in City Houses.

VI.—Tanks and Cisterns.

United States or Canada.

VII.—Tanks and Cisterns.
VII.—Tanks and Cisterns.
VII.—The Chemistry of Plumbing.
IX.—Elember of Plumbing.
IX.—Sunitary Construction and Drainage of Country Houses.
XI.—Water Supply in Country Districts.
XII.—Suggestions Concerning the Sanitary Constructions.
XII.—The Plumber and His Work.

CAMPIN-A Practical Treatise on Mechanical Engineering: Comprising Metallurgy, Molding, Casting, Forg-ing, Tools, Workshop, Machinery and Mechanical Manipulations. With an Appendix on the Analy-sis of Iron and Iron Ores. Illustrated, 8vo., \$6.00

Bergen Port Spelter

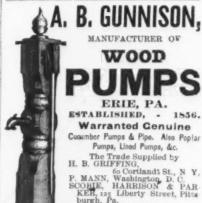
INES: WORKS & FURNACES
th Valley, Pa. Bergen Port, N. J.
The only Miners and Manufacturers of MINES: Lehigh Valley, Pa. PURE

SPELTER

From Lehigh Ore. Especially adapted for

Cartridge Metal and German Silver. Also manufacturers of BERGEN PORT OXIDE ZINC.

superior for Liquid Paint on account of its body and wearing properties. F. OSCOOD & CO., Proprietors. E. A. FISHER, Agent, 13 Burling Slip, N. Y.



Cucumber Pumps & Pipe. Also Poplar
Pumps, Lined Pumps, &c.
The Trade Supplied by
H. B. GRIFFING,
60 Cortlandt St., N. Y.
P. MANN, Washington, D. C.
SCOHLE, HARRISON & PARKER, 125 Liberty Street, Pitus
burgh, Pa.
KNECHT & THOMAS,
Winchester, Ind.

A. B. GUNNISON



FIRE HYDRANTS. Axe, Hatchet, Powder and Brush Machinery. MOHAWK & HUDSON MFC. CO.,

BENTON, FAULKNER & BIRD, 16 New Church street, New York Agents.



GEO. M. EDDY & CO., Manufacturers of

Measuring Tapes Of Cotton, Linen & Steel.

FOR ALL PUMPOSES. 351 to 353 Classon Ave. Brooklyr, N. Y.

Fant Steel I S

Disston's Disston's Buck Br. Stanley & Screw Rat H'd Round H Flat Hear Ground H Flat H Ground H Groun

Moore's Am Philadelph Shovels Ames. New 14. Hussey Bi Old Colony Remington Dunning's Shoveland's Shoveland's Shavels Froisined St. Marces. Square Fra Less than

New York Wholesale Prices, January 7, 1880.

	1
HARDWARE.	
A nvils. Eagle Anvils (American)	10 F
Armitage's Mouse Hole	MG
Sugers and Bits. Com. Valley Mfg. Co	
Douglass Mf . Co	
Ives. dis 40&1 B secher (French, Swift & Co). from list G-teworld Jan. 7, 186	of of
G-iswold	
C.ok's, Douglass Mfg. Co. dis 5 Cook's, lves'. dis 5	Ro
Saell Mfg. Co. s C. S. Augers	0%
" C. S. Bitsdis 40 " Jenning's Bitsdis 30	- 1
Patent Solid Head	8
Russell Jennings' Augers. dis 1084&10610&10 Russell Jennings' Car and Machine Bits, Boring- Hachine and Millwrights' Augers dis 24&10&10&10	1 %
Patent Solid Head. Russell Jennings' Auger Dowel, Machine- "lowel and Hand-Rall Bits. dis tokrokrick in Russell Jennings' Augers. dis 16%&rockrokrick in Russell Jennings' Car and Machine Bits, Boring- Hachine and Millwrignts' Augers dis 25&rockrokrick in Initation Jennings' Bits. dis 35%&rockrokrick in Lewis' "Jennings" Bits. dis 35%&rockrokrokrokrokrokrokrokrokrokrokrokrokrok	200
Anti ews lits. Expensive lits, Clark's, small, \$18; Pgc, \$20 dls 2; Pgc, \$20 dls 2	W. W.
11 Prench Swift & Co dis 30	8
Bonnev's Adjust ® dos \$48—dis 40	K K K
" Ives' Expansive each \$4.50—dls 30 Univ'sal Expansive, each \$4.50—dls 10 Univ'sal Expansive, each \$4.50—dls 10	2 4 2 2
Univ'sal Expansive, enca \$4.00 dis 10 Gmiet Bits	N M M
Et. Valley Mig. Codis 30&10 Hartwell'sdis 60&10 Douglass	M NA NA
Morse aBit Stock Drill, List of May 15, 78dis 25 L'Hammedieu's Ship Augers	N N
Awl Hatts.	1
S:wing, Brass Ferrule\$3.50 \(\pi\) gross—dis 40&10 P \(\pi\) ' dis 40&10 D tent Sowing Short & to 2 doz=dis 40&10	S F
P tent Sewing, Short \$1.00 \$\vec{v}\$ dos—dis 40&10 Long \$1.40 \$\vec{v}\$ doz—dis 20 Peg Plain Top. \$10.00 \$\vec{v}\$ grosse—dis 40&10 Leather Top 12.00 dis 40&10	S S
A wis, Brad Sets, &c. Awis Sewing, Common	1.8
" Sewing, Best	« I
" Patent Peg	S A
" Handled Brad	E D
** Shouldered Brad ** gross \$2.70—dis 2\$£10. ** Handled Brad ** \$2.00 \(\) gross—dis 2\$£10. ** Handled Scratch ** \$2.00 \(\) gross—dis 2\$£10. ** Socket Scratch ** \$1.00\$\(\) \$2.50 \(\) dos \$2.50 \(\) dos \$4.25 \(\) 0.5 ** Dos \$1.00\$\(\) \$2.50 \(\) dis 2\$£20. ** Stanley's Excelsion, No. 1, \$2.00 \(\) dis 2\$£20. ** No. 2, \$4.00 \(\) dis 2\$£20. ** No. 3, \$7.50 \(\) dis 2\$£20. ** No. 3, \$7.50 \(\) dis 2\$£20. ** No. 3, \$7.50 \(\) dis 2\$£20.	PNN
Axes. Light. Med. Heavy.	E Si
Axes. Light. Med. Heavy. M. H. Jones & Co \$8.00 \$8.40 \$9.00 \$\tilde{V}\$ doz net Bloods	S
Axle GreaseFrazer's # 2 6	-
Balances	Ci
Hand, Light Brass	F.
* White Metal	
Glove (Cone's Patent)	Co
Yankeedis 30&10 %	
Crank Taylor's	Ca
"Brook's	Вс
" R. & E. M. Co.'s	Pi
C til	He
Western dis 20210 5 Bargent's new list dis 4-210 5 Fentucky 'Star' dis 20210 5	Sa
Dodge's Genuine Kentucky, new list- Nos. o 1 196 2 3 4 5 6 Hog dis 55 %	Tr
Dodge's Genuine Kentucky, new list- Nos. o 1 1½ 2 3 4 5 0 Mog } dis 55 \$ \$\$\frac{8}{812.00}\$ 12.00 \$\frac{1}{2}\$ 03 45 0 \$\frac{1}{2}\$ 05 05 05 \$\frac{1}{2}\$ 05 05 05 05 \$\frac{1}{2}\$ 05 05 05 05 05 05 05 05 05 05 05 05 05	Ge
Bellows.	On
" Extra and Pittsburgh Pattern dis 20 %	1
Hand BellowsList of Dec. 1, 1879, net Helting. Rubber. N. Y. Belting and Packing Conew list net	He
Ait fielders. Extension, Barber's	Bh
Ives W doz \$15.00—dis 40 %	Bot
Blind Adjusters,—Domestic dos \$3.00, dis 20 \$ Bline Fraterers,—Mackrell's	
Van Sand's	
old pattern# gross. \$9.00 net Washburn's Patent # gross \$0.00 net Merriman's	
Blind Staples. Barbed, 14 in. and larger	Tai
** % iB	
Differential Pulley Blocks	iro
Sheaves Shankev R. & L. Co., Rope and Iron Strap'd. dia 35%	41
figits.	61
Cast Iron Chain .Sargent's list)dir 65&10 % Bush's Lever and Chain Boltsdis 40 %	C
Wr night Barrel dis 40210 % " Square dis 40210 \$ " Shutter, all Iron, Stanley's list dis 45 \$	Noi
" Brass Knob, " "dis 20210 %	0
** Sung Flush, Sargent's	Hac Glo Pia
" Ex. Heavydis 40%	Ale Co Bon
Philadelphia, new list. dis co@ 65 1 Philade. Pattern. dis 65% 5	Inci
R. c. & W. Carriage (old list)	Ame Free The
R. p. & W. Carriage (out list)	Ce
R. B. & W	Con
BBI ME.	Call
Boring Machines. Upright. Angular.	Ben
with Augers 8.50 10.25 dis 40 ≸ I u 1Pr. Eo Augers 2.75 3.50 net. Phillips with Augers 15.00 dis 40 ≰	Coo
O S. Backus	Mul
Wilson Mr. Co	Brac
Common Bali (American)dis 5468552010 %	Wad
Bright Wire Goods that of Dec. 15, 1879.dis 50&10 %	Cast

lew York Wh	ole
Bull Riugs,—Union Nut Codis 508 Sargent's	10 % 36. 56.
Totchkiss'	Cur 45 % Fitch'
' Corbin's	Iawre
Fast Joint, Narrow	o % White
Fast Joint, Narrow dis 20%	10 % A mm M
L 1040 JGin Hroad dla 40% L 1040 JGin Hroad dla 40% Japan nod dla 40% Parliamert dla 50% Myst still gea dla 40% L 1050 Fin no Acorn dla 40%	Nauga Aaron Deg Embos
Japanned	Brass.
Fast Joint Narrow dis 40&1 Lt. Narrow dis 40&1 Froad disso&1 Loose Joint, Broad dis 50&1 Table Buts. Back Flaps, &C. dis 40&1 Inside Bilad. Regular. dis 60&1 Loose Pin. Wrt. dis 50&1 Loose Pin. Wrt. dis 50&1 Nuring Hinges dis 50&1	Of Gray's Bee Ro
Inside Blind, Regular	0 % Gem (C 0 % No. 1, No. 2, No. 3. Chall
American Spiral Spring Butt Co., Jap'd	
Fancy dis Gen Spiral S	Premiu Japar Nicke Star (Co No. 4, ('No. 5,
Union Mig. Co. dis 2 Bommer's dis 2 Bind Butts, Farker. dis 50% Palmer dis 37%&x	No. 5, No. 6, 1 No. 7, Sabin's Sabin's
Shepard's "Double Locking" Nos. 1 & 2	Sabin's Sabin's Philade Barker' Cowell'
Lull & Porter din 66% ro Nicholson dis 46% ro Huffer 5, 5, 4 and 45, dis 56% ro Clark's, Nos. 1, 5, 4 and 45, dis 56% ro Sarrent's No. 12. dis 66% ro	Rubber Brav Crossma Merrill.
Bargent's No. 12. dis coate Bow Phus. low list n Humason, Beckley & Co.'s (low list). dis 55	Nobles I
### ##################################	
Can Openers.	K Ratchet
Lyman's	12
Poole	Wilson's Automas Drill
U. M. C., F. C. trimmed	E Dov
O. D. & S. B	c Family.
Double Waterprof, in 1-10 s 10 10 10 10 10 10 10	* I Storehor
Cards.—Horse and Curry. dis 10 Cotton. dis 10 Wool. dis 10 Car Pusher.—"Giant". \$6.25 each, dis 20	Emer
Carpet Stretchers. Cast Steel, Polished	Washing
Casters, Beddis 2:&10 9 Piate and Shallow Socket	Hampder B. & A. E
Deen Socket	Kettles
Sargent'sdis tokio j	Escuto
Prace, 6\(\frac{1}{2}\) - 1 - 2 .	Brass The
Covert Hatter, Hitching and Breast dis 34.5	Faucet Frenn's
Chalk.	Drift
White # gross for not ted # gross for not ted # gross so net slue. # gross 100 net White Crayons. # gross 150 net Chisets.	
Socket Framing, Crossman	Auburn
	E. M. Boys G. & H. Ba Nicholson
Merrill. dis 6c&; 7 Witherby Tool Co. dis Go 5c	Heller € I Madden & J. & Riley Johnson & sutcher's
Witherby Tool Co dis	Fisher's
ron, Providence Tool Co.'s, Wrt. Irondis 25 \$ " Adjustable, Gray's	H. Disston Western (Limet & C Lightning Fluting
Lambert's dis 20 s	Peerless,
	Engie, 356
orway or Beat	Eureka, N " N Crows43
ackingnew list, Jan. 1, '80 love	Crown Jev American, Domestic Geneva Ha
Coffee Milia. card and Boxnew list, Jan., 188c, dis 35 % cerease Wilson'snet	Crown Ha
Map S Fat. \$9,50, \$10,50, dis 25 \(\)	Clark's Ha Combined Buffalo
Composees, Dividers, Acc.	Forks. Hay, Mant Plated" A "Ree
Dispasses	Fruit a Enterprise Fry Pa
Miss Call Co.'s Dividers dis 602 25	No W dos
reelsfor. dis 50 % dier's Patent dis 35 % Coopers' Tools.	Grangos Wire
radley's dis 15 @ 20 % Corkscrows.—Humason & B. dis 334 % Corn Kulves and Cutters.—Bradley's. dis 10 % adsworth's. dis 334 % dis 334 %	Nail and S "Bee "Gin "Eureka "Diamond
Urow Hars. 613 33 5 5 15 5 5 6 15 6 15 6 15 6 15 6	Double Cu

riing Irous, &ce. Kin., \$1.80 2.00, 2.40dis :		
	Glue Pots.	24
ing Tongs	L. F. & C.'s "Handy	15
rry Comba.	a di di Wayatanali dia	10
hkiss Noveity dis 2 rence dis 4 rence, with detachable Mane Comb dis 33/ ser. # dos #3.ce, dis 16	0 3 Gun Wads, 6 5 U. M. C. B. E. 11 up	y.
e Enameldis 19	TO BE TEND S. TO CLES SAR	15
tierv. len Cutiery Co. (Table)	et Rammers. 490)	3
ason & Beckley, Pocket dis ac	Cheney's	505
Rogers & Son, A. A. dis 40&5&6 atuck Cutlery Co. list n Burkinshaw's Pocket dis 25 g Colinrs,	(5 g Warner & Noble's	000
Based Gilt	Halters. Covert's Pat. Ropedis 9 Horse and Cattle Ties, Covert'sdis 9	0
or Springs. y's Rod # dos \$2.50 no	Hand Culls and Leg Irons.	0 :
# dos \$1.75, no	Tower's dis 2	5 5
Coil)— 1, Large, Japanned	Handles.—Door or Thumb Latches— Nos	0
7. Small	Bronged from Drop Latches	0
ppered	### Barn Door. per doz #\$.co, dis coatro Wrought Chest dis 6o to Surface Chest, Sargent's list dis 6o to Fineh Chest dis 6o to	A ST
unned	Lifting dis 55&tr Saw and Plane dis 40&to Boynton's Pat. Loop Saw Handles dis 40&to	A SER
("Snoo Fly") Screen door size # doz \$1.75 Screen Door Size	" " Centennial Saw Handiesdis 20 Hammer and Hatenet	NAME OF
Large	Hickory Firmer Chieci, assorted, # gross \$4.50 Large, 5.00 Apple assorted, 5.00	
s Crow B,	Socket " sasorted, " 5.00 dis	A
r, complete	t Auger, assorted, F gross	×
nan's No. 1dis 65&10 9	Douglass' W set \$1.25, dis 10	W.M.
Mfg. Co dis 15, 5 7 4 4 5 5 5 5 5 5 5 5	Hangers dis 50	N NA NA
is and Drill Stocks.	Climax (Anti-Friction). dis 45 Sterling Improved (Anti-Friction). dis 65&To Cheritree. dis 40	S. Salan
mitns'oach \$3 00 nei miths' Seif Feedingeach \$7, to, dis 12 5 P. S & Wdis 20 5	Kidder'sdis 40&10	8
Hotchkias	Judd's " " 14.00, dis 45&2	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Wilson's Miller's Fails	Andrews' dis 50 Sargent's dis coltio	あいません
Inpersoil's	Covert	-
Moore's Triple Action	Hatchets	
Chucks.—Morse's Beach Patent dis 30 % "Adjusteach Sro.cc. dis30 %	Hunt's dis 20 shingling, Nos. 1 2 3. \$\Phi\ doz \partial 7.25 \$\partial \text{shingling}, Nos. 1 2 3. \$\Phi\ doz \partial 7.25 \$\partial \partial \text{shingling}, Nos. 1 2 3. \$\Phi\ doz \partial 7.5 \$\partial \text{shingling}, shingl	ď.
v		
Benzers. # gross, \$42.00; doz \$4.00 not 1. # do 33% \$ per gross \$33; per doz., \$3.00 net	Claw, Nos. 1 2 3. \$\psi\$ dos \$\(\) c.co \$\\ \) c.co \$\\ \) s.co \$\\ \) c.co \$\\ \) tathing, Nos. 1 2 3. \$\psi\$ dos \$\\ \) dos \$\\ \) c.co \$\\ \) s.co \$\\ \) s.co \$\\ \) s.co \$\\ \) dos \$\\ \] c.co \$\\ \) dos \$\\ \) dos \$\\ \] s.co \$\	200
nter Buckets. Buckets, light, 314 to so in. (Duc's Improved) \$\times\text{100 \$15.00 @ \$54.00, net}\$	Claw, Nos. 1 2 3 doz 9.00 9.5) 10.00 1	-
Buckets, heavy, 5 to 10 inches (Duc's Improved) # dos \$5.60@ \$10.70, net suse, (Duc's Patent) 12 to 17, \$12.00 @ \$20.00net	Claw, Nos. 123# dox 9,50 \$6.00 \$6.50 \$6	
ry and Emery Paper.	Nos. 56 78 \$\tilde{\text{W}} \text{ to \$\tilde{\text{S}}\$ cos \$\tilde{\text{R}}\$ cos \$\t	
Flour and FF P b	Shingling, Nos. 1 2 3	
Flour \$ bs ce test Senery Paper Senery Paper dis 204925 \$	Wadaworth 2dis 33% \$	
en Emery Grain	## dos \$10.00, dis 50 % Gate, Western	
neled and Tinned Ware	" N. E. Reversible \$ dos \$6.50. dis 50 \$ Gate, Ciark's N. 8. 1 \$ dos \$0.00. dis 45 \$ \$ " N. Y. State \$ dos \$0.10. dis 50 \$10 \$	
ansdis 35&5 % Sauce Pansdis 35&5 %	" Sevmour's Nus to 20 ft 2 dis 40 %	
cheon Plus,dis 25 \$	Rolled Biind Hinges	
ca	Wrought Strap and T, list Dec. 20, '77dis 34216 % Plate Hinges 48, 10 & 12 in, \$5.10 & 100 b (dis 10 %	I
cheons.	Providence jover as in the order to be	
cheons. ck	Screw Hook and \$ 8, 10, 12 in., \$8.10 \$ 100 b / dis 10 \$ Strap	
Cheens.	Screw Hook and \$, 10, 12 iii., \$8.10 \(\psi \) 100 \(\psi \) dis 10 \(\psi \) Strap	
cheons. Same discounts as Door Locks tread dis fokto §	Strap	
cheons. Same discounts as Door Locks tread dis fokto §	[56 ID. WC]	
cheoms. Same discounts as Door Locks trend dis focto \$	[56 ID. WC]	
Cheoms Ck	Screw Hook and \$, 10, 12	
Cheoms	13a III. 3cc 245 25 25 25 25 25 25	
Cheoms	13a III. 3cc 245 25 25 25 25 25 25	
Cheoms	13a III. 3cc 245 25 25 25 25 25 25	
Cheoms	13a III. 3cc 245 25 25 25 25 25 25	
Cheoms	13a III. 3cc 245 25 25 25 25 25 25	
Cheoms	Hors.—Solid Shank, C. S \$\footnote{B}\$ dos \$5.25\$, dls 15 \$\footnote{B}\$ socket \$\footnote{B}\$ dos \$6.75\$, dls 15 \$\footnote{B}\$ socket \$\footnote{B}\$ dos \$6.85\$, \$\footnote{B}\$ socket \$\footnote{B}\$ socket \$\footnote{B}\$ socket \$\footnote{B}\$ dis \$6.85\$, \$\footnote{B}\$ dis \$6.85\$, \$\footnote{B}\$ dis \$6.85\$, \$\footnote{B}\$ dis \$6.85\$, \$\footnote{B}\$ dos \$6.85\$, \$\fo	
Cheoms	Hors.—Solid Shank, C. S \$\footnote{B}\$ dos \$5.25\$, dls 15 \$\footnote{B}\$ socket \$\footnote{B}\$ dos \$6.75\$, dls 15 \$\footnote{B}\$ socket \$\footnote{B}\$ dos \$6.85\$, \$\footnote{B}\$ socket \$\footnote{B}\$ socket \$\footnote{B}\$ socket \$\footnote{B}\$ dis \$6.85\$, \$\footnote{B}\$ dis \$6.85\$, \$\footnote{B}\$ dis \$6.85\$, \$\footnote{B}\$ dis \$6.85\$, \$\footnote{B}\$ dos \$6.85\$, \$\fo	
Cockayne File Co. Front Gas 25	Hors.—Solid Shank, C. S \$\footnote{B}\$ dos \$5.25\$, dls 15 \$\footnote{B}\$ socket \$\footnote{B}\$ dos \$6.75\$, dls 15 \$\footnote{B}\$ socket \$\footnote{B}\$ dos \$6.85\$, \$\footnote{B}\$ socket \$\footnote{B}\$ socket \$\footnote{B}\$ socket \$\footnote{B}\$ dis \$6.85\$, \$\footnote{B}\$ dis \$6.85\$, \$\footnote{B}\$ dis \$6.85\$, \$\footnote{B}\$ dis \$6.85\$, \$\footnote{B}\$ dos \$6.85\$, \$\fo	91919
Cheons Cok	Hors.—Solid Shank, C. S \$\(\text{S} \) dos \$5.25, dis \$1.5 \$ Socket \$\(\text{S} \) dos \$6.25, dis \$1.5 \$ Socket \$\(\text{S} \) dos \$6.75, dis \$1.5 \$ Siveted Shank \$\(\text{S} \) dos \$2.5 dis \$1.5 \$ Fiveted Shank \$\(\text{S} \) dos \$2.5 dis \$1.5 \$ Fiveted Shank \$\(\text{S} \) dos \$2.5 dis \$1.5 \$ Flanters' dis \$0.60 \) \$2.5 dis \$1.5 \$ Scoviii Pattern, dis \$2.6 \$2.65, \$ Scoviii Pattern, dis \$2.6 \$2.65, \$ Scoviii Pattern, dis \$2.6 \$2.65, \$ His Siveted & Lane, Planters dis \$2.6 \$2.65, \$ Winsted & Lane, Planters dis \$2.6 \$2.6 \$2.5 \$ Winsted & Lane, Planters dis \$2.6 \$2.6 \$2.5 \$ Bird Cage, Sargent's list dis \$2.6 \$2.5 \$ Cotton, Fatented (N. Y. Mailet & Handle Wks), dis \$0.5 \$ Cotton, Fatented (N. Y. Mailet & Handle Wks), dis \$0.5 \$ Cotton, Fatented (N. Y. Mailet & Handle Wks), dis \$0.5 \$ Cotton, Fatented (N. Y. Mailet & Handle Wks), dis \$0.5 \$ Cotton (Humason & Beckley Mfz. Co.). dis \$4.5 \$ Belt, (new list Dec. 2, \$4.5 \$7 dis \$4.5 \$ Belt, (new list Dec. 2, \$4.5 \$7 dis \$4.5 \$ Belt, (new list Dec. 2, \$4.5 \$7 dis \$4.5 \$ Elet, (new list Dec. 2, \$4.5 \$7 dis \$4.5 \$ Elet, (new list Dec. 2, \$4.5 \$7 dis \$4.5 \$ Elet, (new list Dec. 2, \$4.5 \$7 dis \$4.5 \$ Elet, (new list Dec. 2, \$4.5 \$7 dis \$4.5 \$ Elet, (new list Dec. 2, \$4.5 \$7 dis \$4.5 \$ Elet, (new list Dec. 2, \$4.5 \$7 dis \$4.5 \$ Elet, (new list Bec. 2, \$4.5 \$7 dis \$4.5 \$ Elet, (new list Bec. 2, \$4.5 \$7 dis \$4.5 \$ Elet, (new list Bec. 2, \$4.5 \$7 dis \$4.5 \$ Elet, (new list Bec. 2, \$4.5 \$7 dis \$4.5 \$ Elet, (new list Bec. 2, \$4.5 \$7 dis \$4.5 \$ Elet, (new list Bec. 2, \$4.5 \$7 dis \$4.5 \$ Elet, (new list Bec. 2, \$4.5 \$7 dis \$4.5 \$ Elet, (new list Bec. 2, \$4.5 \$7 dis \$4.5 \$ Elet, (new list Bec. 2, \$4.5 \$7 dis \$4.5 \$ Elet, (new list Bec. 2, \$4.5 \$ Elet,	Service Control of the Control of th
Cockayne File Co. Scot of E. dis 25 September & Co. Scot of	Hors.—Solid Shank, C. S \$\(\text{Q of } \) \$\(\text{Socket} \). \$\(\text{Q of } \) \$\(Q of	
Cockayne File Co. Scot of E. dis 25 September & Co. Scot of	Hors.—Solid Shank, C. S \$\(\text{Q to 8} \) \$2.5, dis 15 \$\) \$\) \$\) \$\) \$\) \$\) \$\) \$\) \$\) \$\)	F 92
Cockayne File Co. Scot of E. dis 25 September & Co. Scot of	Hoes.	
Cockayne File Co. Scot of E. dis 25 September & Co. Scot of	Hoes.	A SECOND CONTRACTOR OF THE PERSON OF THE PER
cheons. ck	Hoes.	
cheons. ck	Hoes.	
cheons. ck	Hoes.	THE OF IE
cheons. ck	Hoes.	THE PARTY OF LEE
cheons. ck	Hors.—Solid Shank, C. S # dos \$2.5, dis 15 g Socket # dos 4.75, dis 15 g Socket # dos 4.75, dis 15 g Siveted Shank # dos 3.25 dis 15 g Grub dis 3.25 dis 15 g Grub dis 3.25 dis 15 g Flanters' dis 3.25 dis 15 g Planters' dis 3.25 dis 15 g Scovili Pattern, Handled dis 2.6 g Scovili Pattern, Handled dis 3.6 g Hick's Pat. Solid C. S. Planters' dis 2.6 g Winsted & Lane, Planters	I S C S JF SFV LE
cheons. ck	Roes.	THE SECOND SECOND

dis	30 % 40 %	Moran's Shoe and Bread Knivesdis 20 % Hay and Straw— Wadswortn's"dis 33% % Fable and Pocket
dis:	25 %	R nobs. Carriage Jap'd Soc. # gross). dls 40&70 g Base—Common. dls 30&105 Hemacite Door Knobs. New list, dls 30&105 Door, Mineral
soat dis	10 % 24 % 30 %	Hemacite boor KnobsNew list, dis 35%4 % Door, Mineral
WITE.	90 %	Poor, Mineral
s 48	k 4 %	Wood Scraws
		" Sargent'sdis 45&10 3 Hemacite Picture
dis :	15 %	Ladies. dis 45&10 %
dis.	5%	Ladles Sargent's dis 45% to 4 Moore's Patent dis 25% Moore's Patent dis 25% Lanterns No. 25% N
25& dis : dis :	10 % 20 %	Tubular
lis q	% O.S	Morroe's Patent \$\psi\$ dox \$\psi\$.co, dis 25 \$\frac{1}{8}\$ Tubular No. 0, \$\psi\$.65 \$\frac{1}{8}\$ No. 1, \$\psi\$.015 \$\frac{1}{8}\$ Tubular No. 0, \$\psi\$.65 \$\frac{1}{8}\$ No. 1, \$\psi\$.015 \$\frac{1}{8}\$ Tubular Alls 25 \$\frac{1}{8}\$ Tubular All 25 \$\frac{1}{8}\$ Tubular All 25 \$\frac{1}{8}\$ Tubular All 25 \$1
	i	Yankee
lis :	5%	De Beque
		Convex Reflector \$3.00 # dox, dis 10 \$1.00 \text{# dox, dis 10 \$1.00 \text{# dox \$8.00 \$1.00 \text{# dox \$8.00 \text
1 30 1 30	os let	Sammls'No. 1, 87.00; No. 2, \$12.00 % dos., dis 55 % Townsend's Patent
20 I	let 0.%	Adness.—Linea Fish dis 25&10 % Cotton Chalk
1380	80	87.40 dis 14210 5 Mason's Linen dis 252.60 5 Wire Clothes, Galvanized each so to account
08010 58011 08011	100	Wire Clothes Galvanised each of 40c het
is 20 is 20 is 20	2 %	Bridgeport
580 10	8	Trunk Langstroth & Crane's List Jan. 1 ,777. Round Rey. No. 1 to 4
-01-		Flat Key dis 33 2 10 5
dis 300 10	8	Yale Lock Co., Flat keydis 40 "Shepardson" or "U. S."dis 35 %
& 10	18	Flate
S 10	*	Branferd
S 55	8	Branford Norwalk Now list, Dec. 15, 1879. List 331542 3 List 331542 3 List 331542 3 List 331542 3 List 341542 3 List 341
8 45 1 10	X X	Reading Hardware Co
40 &10	100	Padiocks—Russell & Erwin
Ç802		Wm. Wilcox & Co and 2 % for cash Yale Lock Mfg. Co.'s "Standard"dis 40 %
5&2 5&2	7 7	Romer's dis 40 % Standard dis 40 % Romer's dis 30 % dis 60 % dis 60 % dis 60 % dis 10 % dis 35 %
8 10 8 40 & 10	21.	Tollete Markens and Comment of the Style
40	8 1	Ment Cutters 2
8.35 8.75	% I	# doz#14.00 17.00 16.00 30.00—dis 25 % # doz#22.00 30.00—dis 25 %
9.25 8.40 1 20	« Y	Perry's Nos. 1 2 3 4 4 g'rd 5 g'rd Each 3 too 400 500 1100 13.00 36.00dis 25 %
8.75	1	Hales'Nos. 17 W dox .815.00 18.00dis 25 %
9.00 8 40 9.00	g I	Draw Cut Nos. 5 2 5 8 10 2 10 2 Each \$5,000 75,00 80,00 225,00 490,00 dis 20 5
0.00 0.00 1.40	5 1	Nos
100	% S	ilver & Deming
35	g A	Minclng Knives. m., 1 bindes, \$11; 2 bindes, \$21; 3 bindes, \$30 per pross. dis 24 % mith's. per dos \$1,7%, dis 10 %
700 700	8	mith's
100	6 8	tebbins Pattern
50	B	Melanaca Gates.
nei	N N	Ted's
	8 1	Nails and Washers. See Trade Report Nails and Washers. Ge off list exagon Nuts Ge off list ashers. Geoff list
56 9	W	Ashers
45 1 10 1 40 1	R	Nut Crackers able (Humason & Beckley Mfg. Co.)
10 % 10 %	() akum. Best b roke
10 %	N	Oliera,—Zine and Tin
10 %	Oi	rase and Copper
10 S	Pi	alicable (Hammer's)
10 %		Alb to
net	Di	Paucils, Faber's Carpenters'
15 % 15 %		" Lumber Fgross 6.75 net Packing, Steam. Y. Beiting and Packing Co new list net
15.5	124.	X. Helling and Packing Co new hat not
15 S	Br	Picture Nails. dis 4c&ro 1 ass Head. Sargent's List. dis 4c&ro 1 T. & S. Mfg. CO. dis 4c&ro 2 receiain Head, Sargent's List. dis 4c&ro 2 " Judd's List. dis 3c 3 receiain Head, T. & S. Mfg. CO. dis 3c 3
30 % 35 % 30 %	Po	rcelain Head. T. & S. Mfg. Codis 30 %
35 %		Pinking trans
10 % 50 %	As	Plaiting Machines
10 % 10 %	l I	6in. \$0.00. tolm. \$10.00.each Planes and Plane I rons. nen. First Quality. dis \$0.20 f second lide for \$0.00 f lide for \$0.0
10 %	Mo	Second dis 402:0 5
lo %	Th Ba	Hev's (Stanley R. & L. Co.) new that Jan. 79. dis 25&10 \$ e Stanley (S. R. & L. Co.) " dis 25&10 \$ fley's "Victor"
0%	Pli	fiance Adjustable, new list
0 %		Auburn Tool Co.'s
20%		Ohio Tool Co
25	F	liers and Nippers.
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Ha	Compared
0 %	Eu	s Pilers
lis	P.1	End Cutting Nippers
lis	Dis	lumbs and Levels.
, % e	Sta	
lia	Sta	" Non-Adjustable
et	Poc	ket Levelsdistoki s
36	San	osi Hole and Tree Augers. uson Post Hole Diggerper doz \$26.00, dis 20 % teher Post Hole Augers?! doz 36.00, dis 20 %
184	Fle	tcher Post Hole Augers
156	Lee	Coner For File Augers
N W W	100	otato Parers, &c. Stato Stato Preler and Silicer & dos \$13.00 dis 10 %
MMMM	Pier	runing Hooks and Shears.
es	P	Pruning Hook Pruning Hook and Saw per dox \$18.00, dis 20 \$
et	Fru Pru	Pruning Hook 't.50, dis 20 % Pee & Co.'s Pruner dis 30 % Lee & Co.'s Pruner dis 30 % ning Shears \$\forall \text{dog} \text{ dog} \$\fill \$
×	Hot	nileys. dis 60&10 5 Hause and Tackie. dis 60&10 5 d Screw dis 50&10 5 dis 60&10 5 ss Screw dis 50&10 5 dis 60&10 5 d Side. dis 60&10 5
et E	Jap	ss Screw dis 50&10 \$ 'd Side dis 60&1c \$ Clothes Line dis 60&1c \$ Fork Solid Eye, &4.50; Swivel, \$5.00, dis 1.c&10&75
1	ALBY	ti tiAnti Printing Bwivel, \$5.00, dis ichiokio

January 8, 1880.	Γ.
Punches. nelt or Drive	Spoke Shaves. Defiance Metallicnew list, dis 25&10 %
Punches P dos \$2.00 : 2.25 : 2.40. dis 45	From
Remis & Call Co.'s Spring and Checkdis 50 % Solid Tinners'	Bonney's.
Rail. Sliding Door Wrought Brass B B 43c dls 1c % Fron, Painted & foot 9c. dls 6c&1c % Earn Door, %, 56 and 36 lach	Pat, Thread Bastingdis 35 & 5 %
Rakes	Solid Table and Tea
Tork.E. Hangers discolor	Pat. Thread Basting
Razor Straps. Genuine Emerson. dis 40 % Radger's Emerson. dis 40 %	Holmes, Booth & Haydens dis 30% 5 % German Silver. dis 30% 70% 5 % Cast Steel, Sil. Plated dis 33% 70% 6 % 10% 10% 10% 10% 10% 10% 10% 10% 10% 1
Badger's (not Emerson).	Tin (P. S. & W.), Feas
Chapman. dis 15 (62 20 %) Raunder's dis 20 % Torrey's dis 20 %	"Lightning" Screw Platedis. 10 %
ron and Tinned new list Oct. 1, 1879 dis 40 % in bulk Copper Rivets and Burs. dis 25 % dis 25 %	Hindostan Stone. # B 6c dis 3314 Ax Stone. # B 8c dis 3314 Slips. # B 10c & & 10 %
Corper Section Corper	Minds
Rods. New list, March 1, '79, dis 25 % Stair	Washita Stone (Boyd & Chase)No. I W B rec net morted (Boyd & Chase) 6, 7 & 8 in, dis 30 % Turkey Oil Stone (Boyd & Chase)4 to 8in, \$1.00 % B,
Rollers.	Lake Superior (Boyd & Chase) # \$2.50 \(\mathbb{P} \) b, dis 10 \(\frac{1}{2} \)
Acme (Anti-Friction)	Grindstones, Family, Loring'sdis 10 % Stove Polish. Joseph Dixon's
Acme (Anti-Friction). dis 4 % Rope. Manufacturers' Net List. Dec. 10, 1879 Manifa. ½ inch and larger # 10 14/5c Manifa. ½ inch and larger # 10 14/5c ¼ inch # 10 15/5c ¼ inch # 10 15/5c ¼ inch # 10 15/5c ¼ inch and larger # 10 14/5c % inch and larger # 10 15/5c % inch # 10 14/5c % inch # 10 1	Stove Polish.
Hay Rope. ₩ 5 14½°C Sisal. ⅓ inch and larger Ψ 75 13 °C - ⅓ inch ψ 75 13 °C - ⅓ inch ψ 75 13 °C	Ruiny Sun # gross \$7.7, net Dixon's Plumbage # 8.75, net
Hay Rope. Boxwood. Ivory.	Squares. Steel. dis 50 %; full cases, dis 50 %to % 2 %tron. dis 50 %; full cases, dis 50 %to % 10 %to %the full cases, dis 50 %to %to %the full cases, dis 50 %to %the full cases, dis 50 %to %the full cases, dis 50 %the full cases full c
Rules. Boxwood. Ivory. Chaplin's. Boxwood. Ivory. Standard. Braniey. dis 60 & 10 % dis 50 & 10 % Willis Thrall & Son.	Try Squares and T Bevels
Sad Irons. From 1 to 10 lbs	Tacks, Brads, &c. List of Oct. 21, 1879: Tinned Swedes Tacks dis co 5
S ad froms. From 1 to 10 lbs	Tinned American " dis v5 Swedes Tacks, all kinds dis 35 Copper Tacks and Nails dis 35
hirs, Pott's Pat. Cold Handle, "Crown"dis 25 % Combined Fluter and Sad Ironper dos \$15.00, dis 15 ¶ Band Paper.	Swedes Hungarian Naiis dia 35 % American dia 36 % dia 37 % dis 37 % dis 37 % dia 37
Band Paper. Bacder & Adamson's Flint, oo to 1½\$4.75 \(\psi \) ream 2\$2\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Tacka. Brads, &c. List of Oct. 21, 1870: Tinned Swedes Tacks. dia 55 Tianed American dis 55 Swedes Tacks, all kinds dis 55 Copper Tacks and Nails dis 55 Swedes Hungarian Nails dis 55 Swedes Hungarian Nails dis 55 American dis 55 American dis 55 Finishing Nails. dis 55 Trunk and Clout Nails. dis 55 Trunk and Clout Nails. dis 55 Common and Patent Brads dis 55 Busket Nails dis 55 Busket Nails dis 55 Brush Tacks. dis 55
" Emery. Fream \$6.50 @ 11.50 New England, same list as B. & A. Flint dis 2c@55 \$ Gage's	Leathered Carpet Tacks
Sask Cord.	Chair Nails dis 30 % All other Tack List goods. dis 30 % Double-Pointed Tacks dis 40%5 %
Steel Ribbon. dis to \$ Snah 1,ocks. Clark's, No. 1, \$10.50; No. 2, \$2.00 per gross. dis 50.5 Fercuson's. dis 30.5 Fercuson's. dis 30.5 Walker's. dis 30.5 Hammond's Window Springs. dis 20.5 Northup Window Springs. \$0.00 per gross, dis 20.5 The Perfect, Clark Smith, Plain Jap d' \$70 \$1.00 net Por. Knob Jap d. \$ \$70 \$1.00 net Nickel-Plated. \$ \$70 \$7.00 net Snah Weights.—Solid Eyes. \$\frac{1}{2}\$	Tapes, Measuring. American
Control	Thermometers.
The Perfect, Clark & Smith, Flain Jap'd \(\pi\) gro \(\frac{2}{3}\triangle \to \text{no.00 net}\) " Por Knob Jap'd \(\pi\) gro \(\frac{2}{3}\text{to.00 net}\) " Nickel-Plated\(\pi\) gro \(\frac{2}{3}\text{to.00 net}\)	Tobacco Kutters, dis 20
Sash Weights.—Solid Eyes	Toe Caiks.—Winsted
Sausage Stuffers or Filters. Miles Miles Perry	Then no
Sawa. Disston's Circular	" Newhouse Pattern dis 50 % " Blake's Patent dis 40 % Mouse, Wood, Choker dox holes, 10 %
Hand, Panel, Rip, &c. dis 20 2 Eoynton's Lightning, Cross Cuts, new list. dis 15 5 One-Man, all lengths, dis 25 5	Trips Game, Newhouse dis 30 % Newhouse Fattern dis 50 % Newhouse Fattern dis 50 % Game Newhouse Fattern dis 50 % Mouse, Wood, Choker F doz holes, 1056 dis 50 % Game F doz \$1.50, dis 10 % Game F doz \$2.50, dis 10 % Game Ga
Sluver	Trewels. Lothrops Brick and Plasteringdis 10&15 \$ Reed's Brick and Plastering
W. M. & C. Mrg. Co. Cross Cuts, except Monarch, als 20 I Livingston's Butcher and Kitchen	Trawels. dis 10&15
NOS 101 102 103 104 105 Per dox. 810.00 8.r 10.00 7.40 5.25 net Faw Frames.	Brades' Brick dis 20 \$ Worrall's Brick and Plastering dis 10&15 \$ Gorden dis 45 \$
Red. Polished and Varnished # doz #2.00. dis 20 f	Triers.
Saw Rods. **Sin w **Nets. Roynton's Patent X Cut, per doz. \$12.00; Hand Saw. Roynton's Patent X Cut, per doz. \$12.00; Hand Saw. Per doz. \$10.00. Initation. **P doz \$3.360.51, to not initation. **P doz \$3.360.51, to not initation. **P doz \$3.260.51, to not initation. **P doz \$3.20.01 is a \$1.20.01 is	Butter and Ch se. dis 25%
Common Lever	Wilson's
Bemis & Cali Co. 4 New Pat dis 40% 5 Bemis & Cali Co. 5 Lever & Spring Hammer.dis 30% 5 Plate and Cross Cut dis 20 5	## Trenton
Alken's Genuine	"Simpson's Adjustable dis 25 % "Family." List net Saw Pilers. Honney's # dos \$24.00 dis 20% to \$
Scales.	" Stearn's dis 20%10 % Hopkins'
Union Platform	Washer Cutters. Washer Cutters. Wdes \$12.00 dis 20 \$10hns01%. Wdes \$12.00 dis 25 \$7 \$Penny's. Wdes \$35.00 dis 35 \$Appleton's. Adopteton's. Wdestand Wdestand Washes
Family Universal dis 45 \$\frac{2}{5} Family Universal dis 45 \$\frac{2}{5} Favorite dis 40 \$\frac{2}{5} Favorite dis	Penny's # doz @ma.co and \$10.00. dis 45 % Appleton's # doz @ma.co and \$10.00. dis 20 % Appleton's # doz @ma.co and \$10.00. dis 20 % Appleton's # doz @ma.co and \$10.00. dis 20 % Appleton's
Seales	Well Wheels.—Revised listdis 60&10% Wire. Brass and Copper List of Dec' 11, 1820 dis to \$
Serrapers. Adjustable Box Scraper (S. R. & L. Co.), \$6.50, dis 22£10 \$ Enx. Handle # dox \$5.00, dis 10 \$ Enx. Handle # dox \$6.00 dis 10 \$ Enx. Handle # dox 6.00 dis 10 \$ Enx. Handle # dox 6.00 dis 10 \$ Enx. E	Wire. Brass and Conder List of Dec' II. 1870 dis to f Bright and Annealed Nos. o @ 18, dissy56 @ 40 be Nos. 10 @ 20, dis 4746 @ 0.5 Nos. 27 @ 20, dis 4746 @ 0.5 Coppered Nos. o @ 18 dis 2746 @ 2.5 Galvanized, Nos. o to 6 ₱ B toc. dis 32 @ 3246 € Tinned, Nos. o to 18 market list. dis o @ 2.2 dis Tinned, Nos. o to 18 dis 35 @ 42 & Cast Steel dis 35 @ 42 & Cast Steel dis 25 @ 42 & East Steel dis 25 @ 42 & Cast
Defiance Box and Ship. dis 26210 % Foot. dis 70210 % Foot. Ship (common). per dos \$3.00 net	Galvanized, Nos. o to 6.
Providence Tool Co. dis 10 % Rerew Orivers. Douglass Mig. Co. dis 20 % to 4 Disston's Patent Excelsion dis 50 % Disston's Patent Excelsion dis 50 % Disston's Patent Excelsion dis 50 %	Tinned, Nos. o to 18. dis 35 de 25 Cast Steel. dis 35 de 25 Cast Steel. dis 35 de 25 de 35 Cast Steel. dis 26 de 36 de 3
Disston a Patent Excelsion dis o 2 Buck Bros dis o 2 Stanley Rule & Lever Cos., Varnishen Hdis. dis 44870 2 Sargent & Co.'s. Black Handley. dis 54870 5	Galvanized Telegraph, Nos. 7 to 9
Sargent & Co.'e	"Staples, Galvanized. # B 8 @ 856 Stubs Steel Wire. \$7.00 to 2 gold Japanned Barb Fence. \$ 1156c
Round Head Iron dis 30 % Flat Head Brass dis 50 % Round Head Brass dis 17 %	Galvanized P B 12560 Steel Music Wire, Nos. 12 to 27 # B \$1.00. net Turner & Seymour Mfg. Co., Picture Wire,
Japanned, Jat of Plain Screws dis 35 5 Law or Common Coach dis 55 Coach Patrat Glimlet Point, List per 100 dis 55 5	Judd's Picture Wire. dis 80&20&10 % Clothes Line Wire, Galvanized # coli 70 @ 40° net Green Wire Cloth, per sq. faot, 30 @ 3½cnet
Machine, Flat Head, Irox, Am. Screw Codis to % Machine, Flat Head, Irox, Am. Screw Codis 60 % Rench, Iroxdis 60 %	Wrenches. dis 45 5 American Adjustable
" Wood, Beech # dos \$3.00, dis 15 2 Hekory dis 202 10 5 4 1 1 2 2 2 10 5 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 1 1 2 2 2 2 1 2	Coes Genuine
Sarrent & Co.'s dis 50210	Girard Agl
Screw Window Balances R. B. Hurunin s, Single g : 0., \$23.94; 5 gro. \$22.68, dis 5 % Shears and Scissors.	" Briggs' Pattern. dis 40st 5 st " Briggs' Pattern. dis 25 st " Cylinder or Gas Pipe dis 25 st 5 st Van Wagoner & Williams' Basin. per doz \$4.5
Shears and Scissors. Cast from (American). Pruning. Bernard's Lamp Trimmers. # doz \$3.75	Aiken Pocket (Bright)
Seriard's Lamp Francisca Gold 88,75 Tinners' Gis 16,	Peerless, No. o, no Cogs. 51.00 No. 1 54.00 No. 24, with Cogs. 60.00
Tailors' Shears	" No. 4, " 53.00 " No. 4, " 71.00 Unique, No. 0. 93.00
Macaves Sliding Door, M. W. & Co. list. dis 33\\\ 22\\ 22\\ 23\\\ 24\\ 22\\ 23\\\ 24\\ 22\\ 23\\\ 24\\ 23\\\ 2	No. 1
Bliding Shutter, R. & E. list dis 3314 % 2 % Sargent's list	" No. 1 (10.00) " No. 8 (20.00) " No. 12 (20.00)
moore's Anti-Friction (manying) dis 40% Philadelohia Hangling dis 40%.5% 2 % Shovels and Spades. Ames. New list, Jan. 1. '79, with changes of Oct.	No. 18. 24.00 20.00 2
Ames. New list, Jan. 1. 79, with changes of Oct. 15 16 18 18 19 19 19 19 19 19 19 19	American Adjustable dis 45
Remington's Changes in list Oct. 18, '79)	Excelsior, No. A, with Folding Bench. 78.00 No. E, for Set Tubs. 66.00 Keystone No. 1, Wood Frame, no Gear. 54.00
Polished Steal	" No. 1e, Wood " Common Gear 60.00 Stamped Tinware.—New List Dec. 1, 12:18
Bistesdis 70 % Less than a case	Stamped Tinware.—New List Dec. 1, 1878. Common Stamped Warelist net Stamped Deep and Retinned Warelist net



163 and 165 LAKE ST., CHICAGO,

AGENTS FOR

PROVIDENCE TOOL CO.,

Reading Bolt and Nut Works,
Syracuse Bolt Company,
Hotchkiss & Gaylord,
Wm. H. Haskell & Co.,
Black Diamond File Works,
J. M. Carpenter. MANUFACTURERS OF

Nuts, Bolts, Washers, Gimlet Point Coach Screws, Endless Chain, Ice Chain, Threshing Machine Teeth, Turn Buckles, Tackle Blocks, Ship Chandlery Hardware, Files, Taps, &c. ALSO

"Climax" Barn Door Hangers, The standard Anti-Friction Barn Door Hanger. Over 90,000 pairs already in use. Send for Circular and Price List.



S. H. & E. Y. MOORE, 163 & 165 Lake St., Chicago, III.

DAVID BLOCK, Plain, Stamped & Japanned

TIN WARE. Block's Tin Spout Strainer & Patent O.K. Grater.



O.K. GRATER BLOCK'S STRAINER 69 BAYARD STREET, Factory, 139 & 141 Centre St., NEW YORK

Pat. Mineral Wool. A. D. ELBERS, 26% H'way, N. Y. Address P. O. Box 4461,

NEW ENGLAND BUTT CO.,

Drilled and Common Cast Butts,

Plain, Japanned, Bronzed, or Japanned with Plated Tips.

ALL KINDS OF BRAIDING MACHINERY.

Also, Manufacturers of

Hardware Specialties.

We will be pleased to furnish estimates and take contracts for the manufacture of large lots of small machines, or articles made mostly of cast iron.

FACTORIES:

WAREHOUSE:

31 Pearl St., Providence, R. I.

30 Platt St., New York.

S. BACKUS,

BACKUS Patent Bit Braces, Angular Borers Ratchet Straight Extensions,

No. 102 Chambers Street, NEW YORK.



EDGAR'S PATENT STOVE SHOVELS, MADE IN ONE PIECE.



OUR CELEBRATED BRANDS, THE CEM, VICTOR, U. S., O. K., and EXCELSIOR

NEW YORK STAMPING CO., Sole Manufacturers,



Wilson Bohannan, Manufacturer of Patent BRASS PAD LOCKS vare Trude. All sees, with Brass and Steel Ke vith and Without chains.

Patent Horizontal Rim Cylinder Night Latch.
Self-adjusting to doors of any thickness, with Patent Stop and Drawer Back Knob-Right OR LEFT HAND.

PASSENGER CAR LOCKS, Bronzed, Nickel-Plated and Japanned BROOKLYN, N. Y. Catalogues and Samples sent upon application. NORTH'S PATENT



Universal Lathe Dog.

deface finished work. Holds round, square or re-regular work. Always stands up square with the work and will not "skew." Is more evenly bal anced than the common dog, Send for circular

SELDEN C. NORTH, No. 347 North Fourth Street, Philadelphia, Pa.

ANUARY 7, 1880. NEW YORK WHO

METALS.	
MILLI LELLO.	GERMAN SILVER TUB
THON THE PARTY OF	4 Per cent
1RON.—DUTY: Bars, 1 to 1½C. F h; Sheet, Ban Hoop and Scroll, 1½ to 1½C. F h; provided, that nor of the above Iron shall pay a less rate of duty than per cent. Pig, 87 F ton; Polished Sheet, 9c. F h Wrought Scrap, 88 F ton: Cast Scrap, 80 per tol Railroad 7cc. F xc bs. Boller and Plate, 1½C. F b.	ne 15 %
per cent. Pig, \$7 \$\pi\$ ton; Polished Sheet, 9c. \$\pi\$ \$\pi\$ Wrought Scrap, \$8 \$\pi\$ ton: Cast Scrap, \$6 per tol Rallroad zer. \$\pi\$ so \$\pi\$ a Roller and Plate, 14c. \$\pi\$ \$\pi\$.	35 16 44 1
Pig iron—AMERICAN Nominal. Foundry No. 1 ton \$35.00 @ 37.	valued at 7 cents # D., or und
Plg Fren—AMERICAN Nominal. Foundry No. 1 No. 2x No. 2x Foundry No. 2x No. 2x Forge. Gray Forge. SCOTCH. Eclinton.	STEEL.—DUTY: Bars, Ingo valued at 7 cents \(\pi \) B., or und eents, and not above 11, scents \(\pi \) B. and 10 \(\pi \) ad val. Railw Hailway Bars, in part Steel, Bassocial comented, cast or 1 Bassocial community proceed description.
Eglinton. \$\pi\$ ton 28.50 \(\text{\text{0}} \) 29.00 Coltness. \$\pi\$ ton 30.00 \(\text{\text{0}} \) 30.00 \(\text{\text{0}} \) Gengarnock. \$\pi\$ ton 30.00 \(\text{\text{0}} \) Gartsherrie \$\pi\$ ton 30.00 \(\text{\text{0}} \)	Bessemer or pneumatic process description, shall be classed a
Halle	
Iron	Spring. Homogeneous. Boller Plate.
Serap. Wrought Scrap, from yard. # ton @ 36.0	Machinery (round and square)
Common Iron	Saw Plate, mill and mulay
% to 1 in. round and square	e English Steet.— Best Cast
% to 2 in. round and square	Round Machinery, Cas Swaged, Cast
## 10 5 in. round and square. ## 10 3.4 is to 5 in. x½ to 1 in. ## 10 5 in. x½ to 1 in. ## 10 5 in. x½ and 5-15. ## 10 5 in. x½ and 5-15. ## 10 4.0 in. x½ and 11-10 round and square. ## 10 4.0 in. #	Blister, 1st quality
Common R. G. American American Nos. 10 to 20	Sheet Cast Steel, st quality
21 to 24	ANTIMONY
Common American American R. C. American American Ph 43/9 21 to 24. Ph 5 to 25 to 26. Ph 5 to 27. Ph 5 to 27. Ph 5 to 28. Ph 5 to 27. Ph 5 to 28. Ph	American.
Galvanised, to to 20.	PipeSheet
27	Shoet BABBIT MEZA
American Cold Rolled W% 6@6160	A 200 : B, 160 : C, 120 .
COPPER.—DUTY: Pig. Bar and Ingo t, :c; OldCopper to B; Wanufactured (including all article of which Copper is a component of chiefvalue), 45 % ad	TIN.—DUTY: Piates, Sheets, Tag b; Elecro-galvanised Plates, 20 of, not enumerated, 35 per cent and Pigs free. Banca, subject
American Ingot * * See Trade Report.	and Pigs free. Banca, subject
Braziers' Copper, ordinary sizes, 1602. per sq.	Straits English
Braziers' Copper, ordinary sizes, 16 oz. and over 12 oz., # sq. ft	I C 10X14 Prime Chargoal
Lighter than to oz. \(\pi\) sq. ft\(\pi\) b 36c Oircles less than 84 is.i n diameter # B 33c	I C 12X12 Charceal
Ulreles 54 in. dismeter and over. \$\Pi\$ 360 Regment and Pattern Sheets. \$\Pi\$ 360 Locomotive Fire Box Sheets. \$\Pi\$ 200	I C 10X14 Prime Charcoal
SHEATHING, BRAZIERS' COPPER. BOLTS, &c. Brasiers' Copper, ordinary sizes, 160E. per sq. ft., and over per lb. Brasiers' Copper, ordinary sizes, 160E. per sq. ft., and over per lb. Brasiers' Copper, ordinary sizes, 160E. and over 10E., \$ 8g, ft. \$ 8 36C Brasiers Copper 10 os and 10 os., \$ 8g, ft. \$ 8 36C Circles less than by is. In diameter \$ 16 36C Circles less than by is. In diameter \$ 8 36C Circles 4 in. diameter and over. \$ 8 36C Regment and Fastern Sheets. \$ 9 30C Beathing Copper, over 12 os. \$ 8g, ft. \$ 9 36C Bolt Copper. \$ 95 36C Copper Bottoms. \$ 9 30C No Copper is Sheathing except 147.48 inches and not to exceed 34 os. to the 8g, ft. TINMINO.	For each additional X add
No Copper is Sheathing except 147.48 inches and not to exceed 34 or. to the sq. it.	☐ C 10x14 \$8.03 @ 8.25 7.75
14X45	I C 14X20 } 1 C 12X12 8.25 8.00
14X45,	Prime Char. 2d qu
14 and 160z, and heavier. \$\mathbb{P}\$ 370 By the case. \$\mathbb{P}\$ 360 is oz. and lighter. \$\mathbb{P}\$ 460 \$\mathbb{P}\$	I C 14x20 8.00 68.34 7.75 68 1 X 14x30 10.00 68 10.35 1 C 20x25 10.2 68 17.00 1 1.50 68 17 1 C 20x25 68 20.40 1 C 14x20 M. F. Brand
### Boiler Sizes. 7 in., 14x52. 8 in., 14x55. 9 in., 14x56. 14 ap	I C 203200 @ 23.00 I C 14 220 M. F. Brand
30.8.00	SOLDER
14 and 15 os. and heavier	American, cash
Brown & Sharp's Gauge the Standard for Metal; Old English Gauge the Standard for Wire,	Lehign, on spot
BRASS MANUFACTURERS' PRICE LIST.—GIS 10%. Dec. 11, 1878. Cash prices for Roll and Sheet Brass. For less guan	8hees, Cask
tity than 100 Bs. add 30 F B. HIGH BRASS. All Nos. not thinner than to No. 28, wider than 2 in.,	
not wider than 1, in 300	Paper Stock
All Nos. to No. 28, inclusive, and widths over 14 to 3: in. inclusive. 350 All Nos. to No. 28, inclusive, and widths over 20 to 9: in., inclusive. 28c. 4 h advance on each No. above Nos. 25 to 33, inclusive.	Canvas linen. (Dealer's Selling Pr
	White linen rags, No. 1
clusive. All Brass thinner than No. 36 is Platers' Brass, at (30 Shoetz aggs, and all sheets out to particular sizes and lengths under 30 in., in width wider than 2 in 370 Printers' Rules	Seconds
40 in. and over	
4 4 20 4 30 4(90	Gunny bagging. Jute Butts Kentucky bagging. Waste paper and scraps Rope cuttings. Kentucky bale rope.
10 10 10 10 10 10 10 10 10 10 10 10 10 1	Kentucky bale rope Grass rope Tarred shaking
40 W h more than High Brass,	Tarred shaking
	Boft "No. 1
Platers' or Gold Metal In Bars 48c	Boft "No. 1
Gilding Metal, so w b more than righ hrass. (In Bars	Hard White Shavings, No. 1. Soft "No. 1. White Shavings, No. 2. Hixed Shavings, part white. Imperfections, No. 2, best folded at No. 1, Heavy Stock
Gilding Metal, so w b more than righ irrass. (In Bare	Hard White Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded all No. 1. Heavy Stock Heavy Light. Newspapers.
Gliding Metal, so we be more than right herass. (In Bare	Hard White Shavings, No. 1. Soft No. 1 No. 1 White Shavings, par swite. White Shavings, par white. Imperfections, No. 2, best folded al No. 1. Heavy Stock Heavy Heavy Heavy Heavy Prints Prints Pure Manilas
Gliding Metal, so we is more than right irrass. (In Bare	Hard White Shavings, No. 1. Soft No. 1. No. 1. White Shavings, pars white. Imperfections, No. 2, best folded al No. 1. Heavy Stock Heavy Heavy Heavy Heavy Heavy Heavy Heavy Hobs Manilas Bogus Manilas and Hardwares. Commons
Gilding Metal, see w b more than right irrass. (In Bara	Hard White Shavings, No. 1. Soft No. 1 No. 1 White Shavings, No. 2. White Shavings, part white. Imperfections, No. 2, best folded at No. 1. Heavy Stock Book Stock Heavy Lights. Newspapers Prints. Pure Manilas and Hardwares.
Gliding Metal, so we is more than right irrass. (In Bare	Hard White Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded all limbers of the state of the stat
Gliding Metal, so we be more than right irrass. (In Bara	Hard White Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, part white. Mixed Shavings, part white. Imperfections, No. 2, best folded at No. 1. Heavy Stock. Heavy. Light. Newspapers. Pure Manilas. Pure Manilas. Bogus Maniles and Hardwares. Commons. Binders' Board Cuttings. Straw Board Cuttings.
Gliding Metal, so we more than righ irrass. (In Bare	Hard White Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded at the state of the state
Gliding Metal, so we be more than right irrass. (In Bara	Hard white Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded at the control of the c
Gliding Metal, so we is more than right irrass. (In Bare	Black Lamp, Coach Paints. Black Paint, in oil. Black Paint, in oil. Kegs, Responses to the coach Paints. Black Paint, in oil. Kegs, Responses to the coach Paints. Black Paint, in oil. Kegs, Right Woolen Tailor Clips.
Gliding Metal, so we is more than right irrass. (In Bare	Hard White Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, No. 2. White Shavings, part white Imperfections, No. 2, best folded at No. 1. Heavy Stock Book Stock Heavy Light Newspapers Prints Pure Maniles Bogus Maniles Bogus Maniles Bogus Maniles Bogus Maniles Bogus Maniles Bogus Maniles Straw Board Cuttings Straw Board Cuttings Straw Board Cuttings Branders Woolen Tailor Clips Satinet Paints, Olls Black Lamp, Coach Painters. Ordinary Ivory Drop, fair Black Paint, in oll kogs, Wile, Prussian, fair to best Rine, Chinese dry Illigangerias
Gliding Metal, so we so more than right irrass. (In Bare	Hard White Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded at limber of the state of
Gliding Metal, so we so more than right irrass. (In Bare	Hard White Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded at limber of the state of
Gliding Metal, see we more than right irrass. (In Bare	Hard White Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, No. 2. White Shavings, part white. Imperfections, No. 2, best folded at No. 1. Heavy Stock Book Stock No. 1. Heavy Stock Light. Newspapers Prints. Pure Manilas Bogus Manilas and Hardwares. Commons Binders' Board Cuttings Straw Board Cuttings. Woolen Tailor Clips Satinet Paints, Olls Paints. Black Lamp, Coack Painters. "Ivory Drop, fair best. "Ivory Drop, fair best. Black Paint, in oil. kegs, silles, Prussian, fair to best, si
Gilding Metal, see we more than right irrass. (In Bars	Hard White Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded si No. 2, Heavy Stock Book Stock No. 2, Heavy Stock Light Newspapers. Prints. Pure Manilas Bogus Manilas and Hardwares. Commons. Binders' Board Cuttings. Straw Board Cuttings. Straw Board Cuttings. Straw Board Cuttings. Straw Board Cuttings. Black Lamp, Coach Painters. Ordinary Tory Drop, fair Light Newspapers. Paints. Black Lamp, Coach Painters. "Ordinary Coach Painters. "Urry Drop, fair Black Paint, in oil. Negs, "Ultramarine. Brown, Spanisa. "Van Dyke Carmine, 40. Green, Chrome. "In oil. "Paris. "In oil. "Paris. "In oil. "Paris. "Green, Chrome. "In oil. "Paris. "Green oil. "Green
Gilding Metal, see we more than right irrass. (In Bare	Hard White Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded at No. 2. Heavy Stock Book Stock No. 2. Heavy Stock Book Stock No. 2. Heavy Stock Light Newspapers. Prints. Pure Manilas Bogus Manilas and Hardwares. Commons. Binders' Board Cuttings Straw Board Cuttings. Woolea Tailor Clips. Satinet Paints, Oils Paints, Oils Black Lamp, Coach Painters. Ordinary Voolea Tailor Clips. Satinet Paints. Black Lamp, Coach Painters. Ordinary University Drop, fair Black Paint, in oil. Loss, March No. 2. White Prussian, fair to best. Wan Dyke Carmine, 40. Green, Chrome. Paris. In oil. Iron Paint, Bright Red. Brown. Spanias Iron Paint, Bright Red. Brown. Forwan. Forwa
Gliding Metal, sc. w s more than right irrass. (In Bars	Hard White Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded at No. 1. Heavy Stock. Heavy Heavy Stock. Light. Newspapers. Prints. Pure Manilas. Bogus Manilas and Hardwares. Commons. Binders' Board Cuttings. Swood Palaicollips. Paints, Olls. Paints, Olls. Paints. Black Lamp, Coach Palaters. Vary Drop, fair. Hine Chinese dry Ultramarine. Brown, Spania. Van Dyke. Carmine, O. Groen, Carome. Groen, Carome. Paris in oil. Iron Paint, Right Red. Purple. Grown Bright Red. Purple. Grown Brown. Frown. Frown
Gliding Metal, sc. w s more than right irrass. (In Bars	Hard White Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded at No. 1. Heavy Stock Book Stock No. 1. Heavy Stock Book Stock No. 1. Heavy Stock Book Stock No. 1. Heavy Stock Light Newspapers Prints. Pure Manilas Bogus Manilas and Hardwares. Commons Binders' Board Cuttings Straw Board Cuttings. Woolen Tailor Clips. Satinet Paints, Oils Paints, Black Lamp, Coach Painters. Ordinary Very Drop, fair best Black Paint, in oil. kegs, Hipe, Prussian, fair to best, Wille, Pru
Gilding Metal, so we is more than right irrass. [In Bars	Hard White Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded si No. 2, Heavy Stock Book Stock No. 2, Heavy Stock Book Stock Light Newspapers Prints Pure Manilas Bogus Manilas and Hardwares. Commons. Binders' Board Cuttings Straw Board Cuttings. Black Lamp, Coach Painters. Ordinary Voolen Tailor Clips. Satinet Paints. Black Lamp, Coach Painters. Ordinary Voolen Tailor Clips. Black Lamp, Coach Painters. Ordinary Ultramarine. Brown, Spanisa Van Dyke Carmine, 20. Green, Chrome Paris. Ordinary Green, Chrome Gree
Gilding Metal, so we is more than right irrass. [In Bars	Hard White Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded at No. 1. Heavy Stock Book Stock No. 1. Heavy Stock Light. Newspapers. Prints. Pure Manilas Bogus Manilas and Hardwares. Commons. Binders' Board Cuttings. Straw Board Cuttings. Straw Board Cuttings. Woolen Tailor Clips. Satinet Paints, Oils. Paints, Oils. Paints. Black Lamp, Coach Painters. Ordinary Vory Drop, fair best. Black Paint, in oil. Light Kegs, Hipe, Prussian, fair to best, Wiltramarine. Brown, Spanica. Crawme. Paris. In oil. Iron Paint, Bright Red. Red. Brown. Purple. Ground in Oil, Bright B. Red. Brown. Purple. Ground in Oil, Bright B. Red. Brown. Mineral Paints. Oranze Mineral. Bed Lead, American. Wilten N. C. Odry. Wenetian N. C. Odry.
Gliding Metal, see w b more than right irrass. (In Bare	Hard White Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded at Month of the Month o
Gliding Metal, see w s more than right irrass. (In Bars	Hard white Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded at limber stock No. 1. Heavy Stock. Book Stock No. 1. Heavy Stock. "Heavy Light. Newspapers. Prints. Pure Manilas. Bogus Manilas and Hardwares. Commons. Binders' Board Cuttings. Woolen Tailor Cilps. Black Lamp, Coach Palaters. "Ordinary Torop, Last. Black Lamp, Coach Palaters. "Ivory Drop, Last. Black Paint, in oil. kegs. Rine, Prussian, fair to best, with the common of the commo
Gilding Metal, see w b more than righ irrass. [In Bars	Hard White Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded sit No. 2, Heavy Stock Book Stock No. 2, Heavy Stock Book Stock No. 2, Heavy Stock Light Newspapers. Prints. Pure Manilas Bogus Manilas and Hardwares. Commons. Binders' Board Cuttings Straw Board Cuttings. Binders' Board Cuttings. Straw Board Cuttings. Straw Board Cuttings. Binders' Board Cuttings. Straw Board Cuttings. Straw Board Cuttings. Straw Board Cuttings. Binders' Board Cuttings. Straw Board
Gliding Metal, see w b more than righ irrass. [In Bars	Hard White Shavings, No. 1 Soft No. 1 White Shavings, No. 2 White Shavings, No. 2 White Shavings, pars white Imperfections, No. 2, best folded at No. 1, Heavy Stock Book Stock No. 1, Heavy Stock Book Stock No. 1, Heavy Stock Book Stock No. 1, Heavy Stock Light Newspapers Prints Light Newspapers Prints Pure Manilas Bogus Manilas and Hardwares Commons Binders' Board Cuttings Straw Board
Gliding Metal, see w b more than righ irrass. [In Bars	Hard white Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded at No. 1. Heavy Stock. Book Stock No. 2, heavy Stock. Heavy Light. Light. Newspapers. Prints. Pure Manilas. Bogus Manilas and Hardwares. Commons. Binders' Board Cuttings. Straw Board Cuttings. Paints. Black Lamp, Coach Painters. Ordinary Ivory Drop, fair Black Paint, in olless. Black Paint, in olless. Wan Dyke Carmine, 40. Green, Chrome dry "Ultramarine. Brown, Spanisa. "Van Dyke Carmine, 40. Green, Chrome. "Brown Bright Red. "Brown Purple. "Ground in Oil, Bright Red. "Brown. "Purple. "Ground in Oil, Bright Red. "Brown. "Purple. "Ground in Oil, Bright Red. "Brown.
Gliding Metal, see w b more than right irrass. [In Bars	Hard White Shavings, No. 1. Soft White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded si No. 2, Heavy Stock Book Stock Heavy Light Newspapers Prints Pure Manilas Bogus Manilas and Hardwares Commons. Binders' Board Cuttings Straw Board Cuttings Stra
Gliding Metal, see w b more than right irrass. [In Bars	Hard White Shavings, No. 1. Soft. White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded si No. 2, Heavy Stock Book Stock Book Stock No. 2, Heavy Stock Light Newspapers Prints Pure Manilas Bogus Manilas and Hardwares. Commons. Binders' Board Cuttings Straw Board Cuttings
Gliding Metal, see w b more than high hrass. In Bar	Hard white Shavings, No. 1. Soft White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded sit No. 2, Heavy Stock. Book Stock No. 2, heav Stock. Blook Stock No. 2, heav Stock. "Heavy Stock. "Light. Newspapers. Prints. Pure Manilas Bogus Manilas and Hardwares. Commons. Binders' Board Cuttings. Braw Board Cuttings. Braw Board Cuttings. Braw Board Cuttings. Satinet Paints, Oils. Paints. Black Lamp, Coach Painters. "Vooled Tailor Cilps. Satinet Paints. Black Lamp, Coach Painters. "Vory Drop, fair Black Paint, in oll Coach Painters. "Vory Drop, fair Black Paint, in oll Coach Painters. "Vory Drop, fair Black Paint, in oll Coach Painters. "Vory Drop, fair Black Paint, in oll Coach Painters. "Vory Drop, fair Black Paint, in oll Coach Painters. "Vory Drop, fair Black Paint, in oll Coach Painters. "Vory Drop, fair Black Paint, in oll Coach Painters. "Vory Drop, fair Black Paint, in oll Coach Painters. "For Draw Coach Painters. "Vory Drop, fair Black Paint, in oll Coach Painters. "Brown Paris Red. "Brown Painters. "Purple. "Brown Purple. "B
Gliding Metal, see w s more than right irrass. In Bars	Hard white Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded at the control of the c
Gliding Metal, see w s more than right irrass. In Bars	Hard white Shavings, No. 1. Soft No. 1. White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded at the control of the c
Gliding Metal, see w b more than right irrass. In Bar	Hard White Shavings, No. 1. Soft. White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded sit No. 2, Heavy Stock. Book Stock No. 2, Heavy Stock. Blook Stock No. 2, Heavy Stock. "Heavy Heavy. "Light. Newspapers. Prints. Pure Manilas. Bogus Manilas and Hardwares. Commons. Binders' Board Cuttings. Braw Board Cuttings. Brains Hallor Cips. Woolen Tailor Cips. "Vory Drop, fair. Black Paint, in oil. Kegs. Black Paint, in oil. "Red. "Brown. "Purple. "Ground in Oil, Bright B. "Brown. "Purple. "Brown. "Burnt. "In oil. "Baw. "Wermont. "Wermont. "Wellow Chronse. "Chinese. "Brown. "No. 1, in oil. "French (Paris). "Sienach Revine Collection oil. "Sienach Revine Cannon. "Sienach Revine Cannon. "Solid. "Prench (Paris). "Black Lamp. "Black Lamp. "Black Lamp. "Black Lamp. "Black Lamp. "Black Lamp. "White, Paris, English, prime "Vermont. "White, Paris, English, prime "Vermont. "White, Paris, English, prime "Vermont. "White, American, No. 1, dry. "Sienach Revine Cannon. "White, American, No. 1, dry. "Solid. "Black Hamerican No. 1, dry. "Black Hameric
Gliding Metal, see w s more than right irrass. In Bars. Platers' or Gold Metal France or Fosished. State of Planed or Fosi	Hard white Shavings, No. 1. Soft White Shavings, pars white. White Shavings, pars white. Imperfections, No. 2, best folded at Most No. 1, heavy Stock. Book Stock No. 1, heavy Stock. Book Stock No. 1, heavy Stock. Book Stock No. 1, heavy Stock. Light. Newspapers. Prints. Pure Manilas. Bogus Manilas and Hardwares. Commons. Straw based Cuttings. Straw based Cuttings. Woolen Tailor Clips. Satinet Paints, Oils. Paints. Black Lamp, Coach Painters. Ordinary ordinary ordinary ordinary ordinary ordinary in the straw based Cuttings. Black Lamp, Coach Painters. Ordinary ordinary. Black Lamp, Coach Painters. Ordinary ordinary ordinary ordinary ordinary ordinary ordinary. Ultramarine. Black Paint, in oil. Lips ordinary ordinary. In oil. Fronce ordinary ordinary. Indian Paints. Brown. Brown. Brown. Brown. Brown. Fronce ordinary. Indian Paints. Indian Paints. Indian In oil. Raw Umber, Barnt. Burnt. B
Gliding Metal, see w s more than right irrass. In Bars. Platers' or Gold Metal France or Fosished. State of Planed or Fosi	Hard White Shavings, No. 1. Soft. White Shavings, No. 2. White Shavings, No. 2. White Shavings, pars white. Imperfections, No. 2, best folded sit No. 2, Heavy Stock. Book Stock No. 2, Heavy Stock. Blook Stock No. 2, Heavy Stock. "Heavy Heavy. "Light. Newspapers. Prints. Pure Manilas. Bogus Manilas and Hardwares. Commons. Binders' Board Cuttings. Braw Board Cuttings. Brains Hallor Cips. Woolen Tailor Cips. "Vory Drop, fair. Black Paint, in oil. Kegs. Black Paint, in oil. "Red. "Brown. "Purple. "Ground in Oil, Bright B. "Brown. "Purple. "Brown. "Burnt. "In oil. "Baw. "Wermont. "Wermont. "Wellow Chronse. "Chinese. "Brown. "No. 1, in oil. "French (Paris). "Sienach Revine Collection oil. "Sienach Revine Cannon. "Sienach Revine Cannon. "Solid. "Prench (Paris). "Black Lamp. "Black Lamp. "Black Lamp. "Black Lamp. "Black Lamp. "Black Lamp. "White, Paris, English, prime "Vermont. "White, Paris, English, prime "Vermont. "White, Paris, English, prime "Vermont. "White, American, No. 1, dry. "Sienach Revine Cannon. "White, American, No. 1, dry. "Solid. "Black Hamerican No. 1, dry. "Black Hameric

Plain.... Eaucy acoteb and Extra Patterns

OLESALE PRICES,	J
Per cent. 9 " 12 " 15 " 16 " 18 " 20 " STEE14.—Duty: Bars, Ingots, Sheets and Colvalued at 7 cents \(\psi \) B., or under, 24 cents; over cents, and not above 11, sents \(\psi \) B; over cents, and not above 11, sents \(\psi \) B; over that the sent of	.35 .40 .50
Tool. American Unat Steel. Spring. 12) Boring Homogeneous. Homogeneous. The Plate Tile. Machinery (round and square). 38 Sheet. 96 18 Saw Plate, mill and mulay. 96 18 Saw Plate, mill and mulay. 96 18 Extra Cast. 75 16 Best Cast. 75 16 Bound Machinery, Cast. 75 16 Swaged, Cast. 75 18 Best Double Shear. 75 18 Blister, ist quality. 75 18 Blister, ist quality. 75 18	60 50 80 80 50 50 60 40 10 10
### 3 ad quality ### 3 co sequently #### 3 co sequently ####################################	CONTRACTO CONTRACTO
A NOC B, 16C C, 13C. TIN.—DUTY: Plates, Sheets, Tagger and Terne, 1.10 %; Electro-galvanized Plates, 20 % %; Manufacture of, not enumerated, 35 per cent. ad. val. Bars, Block and Pigs free. Banca. % % Soc & Straits % Soc	
I C 10X14 Prime Chareoal. \$8,00 ⊕ 9.5 0.7 12X12 9.35 ⊕ 9.7 14X20	
C 123 2	3
Paper Stock, &c.	
A	
Paints, Oils, &c.	
Paints	Rining
66 61 61 Brown	Nos Pig
Raw	Pising, strong s
American, Common. 150 htte Lead, American, pure dry 5 to 70 htte, Paris, English, prime in oil. 85 to 90 htte, Paris, English, prime in bila 2 6 256 hlow Ochre, French 1. 81.75 in oil. 888'd cans. 110; kegs, 80 http://doi.org/10.10/10	La

Sund	ries.			
Asph atum				
Bensine	******	******	9	
Chaik				
" Block	*******	******		
" Block. Dryer, Patent, Am'n	888	t cans.	1016C:	keg.
Frosungs				
Glue, White	******	*******	*** ***	33 @ 4
" Sheet	******		***** *	
Glasiers' Points, Zinc Gum, Copal	******			
" Damar			*****	*****
" Shellac, English				
Litharge. English		*******		4
Litharge, English				B 00
Mineral Wool			P B 134	@ 13
Pumic Stone, selected Lum	pa			-4 @
powdered	******	******	*** ***	29
Putty, in bladders				3
" in bulk. Rotten Stone, soft, English.				
Spirits Turpentine				4
Whiting Spanish				9
en-	-			
Glas	18 .			
FRESCH WIND	ow gr	A88.		
			-4	
Prices current pe			et.	
			et.	
	r box	of 30 fe		_
Prices current pe Single ThickDis	er box o	of 30 fee	0 \$. 69
Prices current po Single Thick, -Dis stress.	r box e	2f 30 fee 40 & 1 2dL	34	-
Prioss current po	scount	40 & 1 30.	3t. 8 6.25	8 5
Prices current per Single Thick.—Discusses. SIZES. S X 5 to to X 15	secount 18t. 8 8.00 8.75	40 & 1 3d. 8 6.75 8.00	3th 8 6.25 7.50	8 5
Frices current pu Single Thick.—Di SUBS. 5 X 5 to to X 15	secount ist. 8 8.00 8.75	40 & 1 3d. 8 6.75 8.00 10.50	3th 8 6.25 7.50 9.75	8 5.
Frices current positingle Thick.—Discusses. 8 x 8 to 10 x 15	18t. 8 8.00 8.75 11.24	90 50 500 40 & 1 3d. 8 6.75 8.00 10.50 11.50	3d. 8 6.25 7.50 9.75 20,00	8 5.
Frices current pu Single Thick.—Di SITHS.	1st. 8 8.00 8.75 11.24 13.40	40 & 1 3d. 8 6.75 8.00 10.50 12.25	3(L) 8 6.25 7.50 9.75 30.00 \$1.25	8 5. 7. 8.
Frices current per Single Thick, —Dis SITUMS. 6 X 5 to 10 X15	8 8.00 8 75 11.24 12.75 13.50 14.75	40 & 1 3d. 8 6.75 8.00 10.50 11.50 13.75	3(L) 8 6.25 7.50 9.75 10.00 11.25 11.75	8 5. 7. 8.
Frices current postures. Single Thick.—Distribute. Extens. Exte	8 8.00 8.75 11.24 12.74 13.60 14.75 10.25	90 % 1 30	3(L) 8 6.25 7.50 9.75 10.00 11.75 13.00	8 5. 7. 8.
Bingle Thick, —Distributed by the second of	8 8.00 8,75 11.24 12.75 13.50 14.75 10.25 17.25 17.25	40 & 1 3d. 8 6.75 8.00 10.50 11.95 12.25 13.75 15.00 26.00 16.75	3d. 8 6.25 7.40 9.75 20,00 \$1,25 11,75 13,00 13,00 15,00	* 5. 7. 8.
Frices current postures. Single Thick.—Discurrent postures. E X 8 to 10 X 15. E X 8 to 10 X 15. E X 8 to 20 X 20. E X 8 to 24 X 20. E X 8 to 25 X 24. E X 9 to 25 X 25. E X 9 to	8 8.00 8.75 11.24 12.74 13.40 14.75 16.25 17.35 18.65	40 & 1 3d. 8 6.75 8.00 10.50 11.25 13.75 15.00 16.75 16.00	3d. 8 6.25 7.40 9.75 30.00 \$11.25 \$11.75 \$3.00 \$3.40 \$15.00 \$15.00 \$15.00 \$15.00	* 5. 7. 8.
Bingle Thick, —Distributed by the second of	8 8.00 8,75 11.24 12.75 13.50 14.75 10.25 17.25 17.25	40 & 1 3d. 8 6.75 8.00 10.50 11.25 13.75 15.00 16.75 16.00	3d. 8 6.25 7.40 9.75 30.00 \$11.25 \$11.75 \$3.00 \$3.40 \$15.00 \$15.00 \$15.00 \$15.00	* 5. 7. 8.
Frices current postures. Single Thick.—Discurrent postures. E X 8 to 10 X 15. E X 8 to 10 X 15. E X 8 to 20 X 20. E X 8 to 24 X 20. E X 8 to 25 X 24. E X 9 to 25 X 25. E X 9 to	18t. 8 8.00 8,75 11.24 12.74 13.50 14.75 16.25 17.35 18.95 18.95 18.95	#0 & 1 #0 & 1 #6.75 8.00 10.50 11.56 12.25 13.75 15.00 16.75 18.00 19.50	3d. 8 6.25 7.40 9.75 30.00 \$11.25 \$11.75 \$3.00 \$3.40 \$15.00 \$15.00 \$15.00 \$15.00	8 5. 7. 8.
Bingle Thick.—Dissums. 8	18t. 8 8.00 8,75 11.24 12.74 13.50 14.75 16.25 17.35 18.95 18.95 18.95	#0 & 1 #0 & 1 #6.75 8.00 10.50 11.56 12.25 13.75 15.00 16.75 18.00 19.50	3d. 8 6.25 7.40 9.75 30.00 \$11.25 \$11.75 \$3.00 \$3.40 \$15.00 \$15.00 \$15.00 \$15.00	8 5. 7. 8.
Bingle Thick.—Dissipate Thick.—Dissipate Thick.—Dissipate Thick.—Dissipate Thick.—Dissipate Thick.—Dissipate Thick. 8 X 5 to 10 X 15. 11 X 14 to 15 X 24. 18 X 25 to 20 X 30. 13 X 35 to 24 X 35. 25 X 35 to 24 X 35. 25 X 35 to 25 X 35 X 35. 25 X 35 to 25 X 35 X 35. 25 X 35 to 25 X 35 X	18t. 8 8.00 8,75 11.24 12.74 13.50 14.75 16.25 17.35 18.95 18.95 18.95	#0 & 1 #0 & 1 #6.75 8.00 10.50 11.56 12.25 13.75 15.00 16.75 18.00 19.50	3d. 8 6.25 7.40 9.75 30.00 \$11.25 \$11.75 \$3.00 \$3.40 \$15.00 \$15.00 \$15.00 \$15.00	8 5. 7. 8.
Bingle Thick, —Distributed by the stress. b x 8 to to x 15,	18t. 8 8.00 8.75 11.27 13.50 14.75 16.25 17.25 18.69 18.60 21.00 Discount	# 50 fee 40 & 1 # 50 fee # 50	34. 8 6.25 7.50 9.75 30,00 \$12,5 13,00 15,00 16,00 18,00	\$ 5.78.
Bingle Thick,—Distributed by the street of t	## box 6 ### 8.00 #### #### #### #### #### #### ####	# 50 fee 40 & 12 dd. # 6.75	3d. 8 6.25 7.40 9.75 30,00 \$1.75 \$1.75 \$1.75 \$1.50	\$ 5.78. 8.
Bingle Thick,—Distrible Thick,—Distrible Thick,—Distrible Thick,—Distrible Thick,—Distrible Thick,—I to x 15,	## box 6 ### Becount #### #### #### #### #### #### ####	# 50 fee 40 & 12 de 40 & 13 de 40 & 13 de 40 de 12 de 40 de 40 de 12 de 40 de	\$ 6.25 7.40 9.75 20,00 31.25 11.75 13.00 18.00 18.00 18.00	8 5. 7. 8. 8 972
Bingle Thick.—Dissipate of the control of the contr	18t. 8.00 8.75 12.75 12.75 13.50 14.75 18.60 18.60	# 60 % 1	3d. 8 6.25 7.00 9.75 20,00 11.25 11.75 13.00 15.00 16.00 18.00 12.75 16.00 12.75 16.00 16.00	\$ 5.78. 8.
Bingle Thick.—Distributed by the second of t	1.5t. 8 8.00 8.75 11.24 12.74 13.40 14.75 16.25 17.35 18.05 19.05 18.	# 60 % 1	3d. 8 6.28 7.40 9.75 30.00 11.75 13.00 15.00 16.00 18.00 12.75 16.00 18.00 12.75 16.00 18.00	8 5. 7. 8. 8 972
Bingle Thick.—Dissipate of the control of the contr	18t. 8.00 8.75 12.75 12.75 13.50 14.75 18.60 18.60	# 60 % 1	3d. 8 6.25 7.00 9.75 20,00 11.25 11.75 13.00 15.00 16.00 18.00 12.75 16.00 12.75 16.00 16.00	; th.

TACKLE BLOCKS BURR & CO.,

Patent Iron Strapped Blocks. ROPE STRAPPED BLOCKS.

THE AVALANCHE

ROTARY, FLOUR AND MEAL



FTER coop, Measure, Mixer, Weigher, Egg eater, Rice Washer; Tomato, Starch, ine and Fruit Strainer. Guaranteed the very best, and the chespest the jobbing trade. It commends itself where-er shown.

N. DUBRUL & CO. 441 & 443 Plum St. Lantern and Sleve Manufers. CINCINNATI, O. MITH BROS. & CO., Agents. 73 Fulton st., N. Y.

Gunpowder.

DUPONT'S

ifle, Sporting and Blasting Powder

The most popular Powder in use.

Dupont's Gunpowder Mills, established 1801 and 1802, have maintained their great outation for 78 years. Manufacture the for celebrated orands of Powder: DUPONT'S DIAMOND GRAIN, (coarse) to 4 (fine), unequaled in strength, quick and cleanliness; adapted for Glass Ball and Shooting.

DUPONT'S EAGLE DUCKING, s. 1 (coarse) to 3 (fine), burning slowly, strong an an; great penetration; adapted for Glass Ball con, Duck and other shooting.

DUPONT'S EAGLE RIFLE. uick, strong, clean Powder of very fine grain fo UPONT'S RIFLE, Fg, "Sea Shooting,"

g and FFFg.—The Fg for long range rifle shoot, the FFg and FFFg for general use, burning ong and moist. g and moist.

o all kinds of Sporting, Mining, Shipping and
ing Powders of all sizes and descriptions. Special
as for export, Also, Munket, Cannen, Mortar
diammoth Powder, U. S. Government standard,
er manufactured to order of any required grain
of. Agencies in all cities and principal towns
ghout the U. S. Represented by

. L. KNEELAND, 70 Wall St., N. Y. B.—Use none but Dupont's Fg or FFg Powder long-range Rifle shooting.

GUN POWDER. Laflin & Rand Powder Co.

No. 29 Murray Street, New York, 900 dt 9 gal. 640 . 9 gal. 1.15 680 . 650 ORANGE LIGHTNING, ORANGE DUCKING,

ORANGE RIFLE ore popular than any Powder now in use Blasting Powder and Electrical Blasting
Apparatus.
Military Powder on hand and made to order.

SAFETY FUSE, FRICTIONAL & PLATINUM FUSES. Pamphiets showing sizes of grain sent free.

HERMANN BOKER & CO.,

PROPRIETORS OF

TRENTON VISE & TOOL WORKS

PICKS, MATTOCKS, GRUB HOES, HAMMERS.



Sole Agents for H. Boker & Co.'s Celebrated "Tree" Brand Cutlery. B. Heinisch's Sons Unrivalled Shears, Trimmers, Scissors, Japanned and Nickled Ward & Payne's Sheep Shears. Peugeot Brothers' Horse Clippers.

J. W. GARDNER'S Unequaled and 66 Warranted Su-

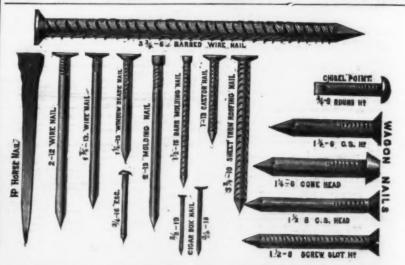
perior to All" **Pocket Knives and Barlows.**

Manhattan and O. K. POCKET CUTLERY & RAZORS. LAMSON & GOODNOW MFG. TABLE CUTLERY.

Guns and Pistols

FISHING TACKLE,

Arms and Ammunition.



Steel, Iron and Brass Nails and Barbed Nails Of every kind.

Roofing and Moulding Nails, Escutcheon Pins, Chair and Caster Nails, Cigar Box and Window Shade Nails, Wagon and Boat Nails. Manufactured by

Cleveland, Ohio.

HALL'S PATENT

DOUBLE COMPOUND LEVER CUTTING NIPPERS.



Manufactured by THE INTERCHANGEABLE TOOL COMPANY, of New York.

PETER A. FRASSE & CO. Sole Agents, 95 Fulton Street, New York.



LIGHTNING HAY KNIVES,

WEYMOUTH'S PATENT.



This knife is the best in use for cutting down hay and straw in mow and stack, cutting fine feed from bale, cutting corn stalks for feed, cutting peat and ditching marches.

The blade is best cast steel, spring temper, easily sharpened, and is giving universal satisfaction. A few moments' trial will show its merits, and parties once using it are unwilling to do without it. Its sales are fast increasing for export as well as home trade, and it seems destined to take the place of all other Hay Knives.

They are nicely packed in boxes, one dozen each, of 50 lbs. weight, suit able for shipping by land or water to any part of the world. Manufactured only by

HIRAM HOLT & CO.,

East Wilton, Franklin Co., Maine.

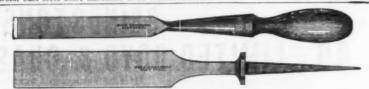
For sale by the Hardware Trade generally.

COULTER, FLAGLER & CO.



Hardware

Warehouse.



BUCK BROTHERS, Millbury, Mass.

The most complete assortment in the U.S. of

Shank, Socket Firmer and Socket Framing Chisels,

PLANE IRONS.

Gouges of all lengths and circles beveled inside and outside. Nail Sets, Scratch and Belt Awis. Chisel Handles. A full stock of Carving Tools. Also, small boxes of Tools of best quality.

A. C. NORTHROP, Waterbury, Conn.,

NOVELTIES IN BRASS AND OTHER METAL GOODS

ught Iron and Brass Machine Screws; Turned, Hexagon, Round and Square Head Cap and ws; Brass and Iron Safety and Jack Chain; Gilt, Nickel Plated and Bronze Trimmings of all on Sheet Iron, Steel or Brass, altes on patented articles, or any description of Street









THE HARTFORD MACHINE SCREW CO.,

Manufacturers of

Hexagon Head Cap Serews, Round Head Set and Cap

Serews, Square Head Set and Cap Screws, Machine

Bobbins, Gun Serews, Agrafies, Studs,

HARTFORD, CONN.







The Original and Genuine. ALL OTHERS ARE IMITATIONS.

OVER 100,000 NOW IN USE.

JEWETT'S PATENT WATER FILTER

With Porcelain-Lined Cooler.

ACKNOWLEDGED THE ONLY COMPLETE AND SUCCESSFUL FILTER AND COOLER IN THE WORLD.

ISAAC S. WILLIAMS & Co., 728 Market Street, Philadelphia, Pa.—We have sold your "Patent Water Filter" for the last six years. Our sales in that time having reached upwards of five thousand and in no instance have we heard of any failure in performing all you claim for them.

SEND FOR CIRCULAR.

JOHN C. JEWETT & SONS, BUFFALO, N. Y.



LIGHT-RUNNING FOOT-POWER

BAND SAW MACHINES.

INVALUABLE FOR

Carriage Makers,

Cabinet Makers, Pattern Makers,

Carpenters

Ornamental Wood Workers

OF EVERY DESCRIPTION. Each Machine has Five Saws of Assorted

Widths, These Machines are not for Amateurs alone, but for Workmen to do good the best of Iron and Steel. all complete weighing 225 Every wood worker should have one.

Send for circular.

KIMBALL & KIMBALL. 639 Arch St., Philadelphia, Pa., U. S. A.

Manufacturers' Wiley & Russell Mfg. Co., GREENFIELD, MASS.

Lightning Screw Cutting Machinery and Tools.

Bolt Cutters for hand or power. Screw Plates cutting from wire sizes to t½. Pipe Taps and Dies.
Taps, Dies and Reamers for use in the Bit

Brace.
Tire Wheels, Tire Bolt Wrenches, Nut
Wrenches. Green River Tire Upsetters. Green River Tire Benders.

THE GREEN RIVER HORSE SHOERS' VISE

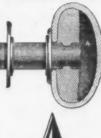


For Welding Heel and Toe Ca'ks.

Special Screw Plates for the use of model nakers, carriage makers and blacksmiths. Green River Drills for hand or power.

Send for Illustrated Price List. THE STAR SALT CASTER CO.,

Cffice, No 161 FRANKLIN ST., BOSTON. Manufacturers of Specialties in House Furnishing Hardware. PATENT EXTENSION DOOR KNOBS



THE STAR SALT CASTER CO., Boston, Mass.

PRESSED STEEL werful, accurate, durable and Any shaped teeth. J. COMLY, Patentee.

LINCOLN PARK, N. J. John Carver,

CAULKING IRONS.

Cotton, Freight and Hay Hooks. No. 44 North Third Street,

In 1841 ex-Governor David Wallace was member of Congress from Indiana and a member of the committee to which Morse's petition for an appropriation was referred. The vote in committee was a tie until Mr. Wallace's name was called, when he gave the deciding vote and the appropriation passed the committee. The failure of this appropriation would have been disastrously discouraging to the inventor, who had then almost lost heart, and the application of telegraphy would probably have been de-

The Beginnings of the Telegraph.

ferred many years.
"One morning," said Mr. Wallace, in an interesting account of the circumstances at tending the introduction of telegraphy, "I entered the House of Representatives, and to my astonishment saw a gentleman rise from his seat whom I had never heard open his mouth before unless it was to vote or address the Speaker. 'I hold in my hand, he said, 'a resolution which I respectfully offer for the consideration of the House.' In work rapidly and with a moment a page was at his desk and the resolution was transferred to the Speaker, and by him delivered to the clerk who and money. They are built

by skilled workmen, of
the best of Iron and Steel oco to enable Prof. Morse to establish a line of telegraphy between Washington and Baltimore.' The gentleman who offered it was Mr. Ferris, one of the representatives from the City of New York—a man of wealth and learning, but modest, retiring and diffident in his demeanor. It being merely a resolution of inquiry it passed without op position, and, out of regard to the mover, without comment. In time it came to the without comment. In time it came to the Committee of Ways and Means, and when Committee of Ways and Means, and when in the order it came before the committee, a scene presented itself I shall not soon forget. The committee was composed of five Whigs and four Democrats. The latter were Mr. Atherton, of New York; John W. Jones, of Virginia; Frank Pickens, of South Carolina, and Dixon H. Lewis, of Alabama. On the Whig side were Millard Fillmore, of New York; Dixon H. Lewis, of Alabama. On the Whig side were Millard Fillmore, of New York; Joseph R. Ingersoll, of Pennsylvania; Sampson Mason, of Ohio; Thomas F. Marshail, of Kentucky, and David Wallace, of Indiana. The clerk of the committee read the resolution. The chairman, Mr. Fillmore, in a clear, distinct voice, said: 'Gentlemen, what disposition shall be made of it?' There was a dead pause around the table. No one seemed inclined to take the initiative. I confess that inasmuch as the initiative. I confess that inasmuch as the mover of the resolution in the House was a

Democrat, I expected the Democratic side of the committee to stand godfather to it there. But not a bit of it. They gave it no countenance. At length Mr. Ingersoll or Mr. Mason, I cannot now recollect which, broke the ominous silence by moving that the committee instruct the chairman to report a bill to the House appropriating \$30,000 for the purpose named in the resolution. The yeas and nays were taken alphabetically. phabetically, and to my astonishment I found every Democrat voting 'No,' and Fillmore, Mason, Ingersoll and Marshall graph. He had stretched a wire from the basement story to the antercom in the Senate Chamber, and it was in my power to satisfy myself in regard to its feasibility. I determined to try it. I asked leave to consider my vote. It was granted. I immediately stepped out of the committee room and went to the ante-chamber. I found it crowded with Representatives and I determined to try it. I asked leave to consider my vote. It was granted. I immediately stepped out of the committee room and went to the ante-chamber. I found it crowded with Representatives and strangers. I requested permission to put a question to the 'madman' at the other end of the wire. It was granted immediately. I wrote the question and handed it to the telegrapher. The crowd cried: 'Read!' In a very short time the answer was received. To my utter astonishment I found that the madman at the other end of the wire had more wit and force than the Congressman at this end. He turned the laugh upon me completely; but, as you know, we Western men are never satisfied with one fall—that never less than two out of three came a second answer. If the laugh upon me completely; but, as you of three came a second answer. If the first raised a laugh at my expense, the second converted that laugh into a roar and a shout. I was more than satisfied. I picked the reise is also no doubt of the advantage they would be to these establishments.

The Gold and Silver Yield.—Wells.

BROOKLYN, E. D ported that the Ocean Line, running between taking, conquered strengous rival efforts.

Savannah and this city, are making arrangements for the building of an iron steamship, which will be larger than the present ships of the line, and will have a capacity for 6000 bales of cotton. She is to be furnished with engines of extra power, so that she is expected to make the run between here and Savannah in 45 hours. The line is now pavannan in 45 hours. The line is now running four steamers per week, and if the business continues to increase as it has done during the past year, it is probable that by next winter there will be a daily steamer between New York and Savannah,

The Regulation of the Temperature of Hot by Cold Blast.

A correspondent of the Bulletin of the Iron and Steel Association writes the following:

lowing:

A point of interest to the pig iron industry has just been settled in the Patent Office. In December, 1877, E. J. Bird, of Ironton, Ohio, applied for a patent for mixing cold blast with hot blast to regulate the working of the furnace when it became too gray or too hot. working of the furnace when it became too gray or too hot. Ten days after this application J. M. Hartman, of Philadelpha, applied for an automatic regulator to regulate the temperature of the hot blast from fire brick stoves when they are on a blow. When they are first started on a blow the temperature is higher than at the end of the blow. To regulate this, and keep the temperature of the blast even, was the object of the latof the blast even, was the object of the lat-

ter invention.

As Mr. Bird's claim covered the broad principle of the use of cold blast mixed with hot blast, Mr. Hartman's device could not be operated on account of Mr. Bird's broad claims. The Patent Office put the two cases into interference, and the matter was de-cided in Mr. Bird's favor on account of priority. An appeal was taken at once on the ground of the public use of mixing cold blast with hot blast for controlling the working of furnaces. Testimony was given in the appeal of its use in 1849 by Joseph C. Kent, of the Andover Iron Company; in 1865 by Joseph Hunt of the Crane Iron Company; in 1870 by Henry Laughlin, of the Eliza Furnaces; in 1873 by Andrew Kloman, of the Lucy Furnaces. By English evidence it was used at Ormesby in 1869, and also at Dudley; this latter evidence was not admitted.

By the decision in the appeal the use of cold blast to mix with hot blast is declared public property. Messrs. Felton, of the Pennsylvania Steel Company, De Saulles, of the Dunbar Furnace Company, and Fennacy, of the Norton Iron Works, Ky., kindly voluntered any assistance they could give in

Water Meters in Philadelphia.

The Philadelphia Ledger says upon this

subject in a recent issue : The cost of the meters, and not the cost of water, in Philadelphia, makes it rather impracticable to put them in just now—that is into all dwellings—so it is hardly worth while phabetically, and to my astonishment I found every Democrat voting 'No,' and Fillmore, Mason, Ingersoll and Marshall voting in the affirmative. My vote would decide it either way. To tell the truth I had paid no attention to the matter. Like the majority around me I considered it a great humbug. I had not the faintest idea of the importance of my vote. But luckily, I recollected that Mr. Morse was then experimenting in the Capitol with his telegraph. He had stretched a wire from the facturers and large establishments, however, all would be willing to put in meters at their own expense, and ought to have this permission, as the present system can only guess at consumption, and there can be no estimates against waste. The actual cost of water laid

style. Silver Center, Fine
Cut, &c. Fitted with
heavy silver-plated
mountings. Extend
from 1 to 3 inches.
They can be adjust
They can be adjust

The Gold and Silver Yield.—Wells,
Fargo & Co.'s annual circular giving the
product of the precious metals west of the
Missouri River, including British Columbia,
and the receipts in San Francisco by express
from the vess and nave."

that day was considered some sort of a trick or humbug, and many of Mr. Wallace's stanchest supporters feared there was something wrong in the old gentleman's head when they heard from his own lips that he really wrong in the old gentleman's head when they heard from his own lips that he really had voted the subsidy. One honest old Selby County farmer, Mr. Wallace said, took him by the hand and looked into his face with the tenderest pity. Finally his lip quivered and the tears fell as he sobbed out: "Oh, Davy, Davy, how could you ever vote for that — magnetic telegraph!"

A New Coasting Steamer.—It is reported that the Ocean Line, running between can engineer, is authorized to make complete purchases of stock and materials for an American railway in Yezo, to extend from the coal fields in the interior through the city of Sappero, the capital of Yezo, to a port on the northwestern coast, a distance from European speculators to confiding this work to American hands, but the cheapness of the contracts, combined with sound work-manship in the early stages of the undertaking, conquered strengous rival efforts, Steel.

WOLFF, KAHN & CO.,

SUCCESSORS TO

R. H. WOLFF & CO.,

MANUFACTURERS, IMPORTERS, EXPORTERS & GENERAL MERCHANTS MANUFACTURERS OF

CAST STEEL WIRE for all Purposes, Special Wire, Market Steel Wire, Prime Coppered Spring Wire, and of all Kinds of Furniture Springs, &c.

IMPORTERS OF

IRON & STEEL, WIRE RODS, SMITH, SUTTON **CUN BARRELS, MOULDS & ORDNANCE.**

EXPORTERS AND GENERAL MERCHANTS.

Direct all communications to

Works, Peekskill, N. Y.

Office and Warehouse, 46 Cliff St., New York.

Hammers, Anvils, Vises, Blacksmiths' Tools. WARRANTED CAST STEEL. Specially adapted for Dies. Punches, Turning Tools, Drills, &c.

IMPROVED MILD CENTERED CAST STEEL Specially adapted for Taps, Reamers, Milling Tools, &c. Warran not to crack in hardening Tools of any size.

SHEET, GERMAN, MACHINERY, SPRING AND EVERY OTHER DESCRIPTION OF STEEL. Phila.-J. S. Watson & Son, Agents, 512 Commerce St., Franklin Works, Wadsley Works, Walkley Works, Sheffield, England.

Pittsburgh, Pa.,

CRESCENT

In Bars, Sheets, Cold-Rolled Strips, &c. Polished, Compressed Drill Rods and Wire.

Warranted equal to any imported in quality, finish and accuracy.

Also Common Grades.

Established 1810.

SHEFFIELD, ENGLAND.

Manufacturers of the "Celebrated

"DOG BRAND" FILES.

For Drills, Cold Chisels, Tools, Taps, Dies, &c. COLD ROLLED STREL for Clock Springs, Corsets, &c.

BHEET CAST STEEL for Springs, Saws, Welding and Stamping Cold, &c.

GERMAN, MACHINERY, ENGLISH AND SWEDES SPRING STEEL, And all other description

Warehouse, 30 Gold Street, New York. HENRY MOORE, Agent.

BESSEMER STEEL

Iron Rail and Fastenings, SPRING STEEL

WIRE OF ALL KINDS,

Steel Horse Shoes, Tire, Axles and other Forgings,

Boiler Plate, Galvanized and Black Sheet Iron, Corrugated Boofing and Siding of Siemens-Martin, Bessemer Steel and Iron. made from our own Lake Superior Ores. CLEVELAND, OHIO

AGENTS FOR THE UNION STEEL SCREW CO. A. B. STONE, Vice-Pres., No. 52 William St., New York.

GEO. SANDERSON & CO.,

Importers of STEEL,

Removed to 30 Gold Street, New York.

Particular attention is paid to quality and temper for Files, Saws, Edge Tools, TABLE and Pocket Cutlery, Tools, Taps and Dies; also for Cold Rolled Steel for CLOCK SPRINGS, CORSET CLASPS, &c.

A Large Assorted Stock of JOHN ROTHERY'S FILES always on hand.

Steel.

NEWARK STEEL WORKS. R.

BENJAMIN ATHA & CO.,

REFINED CAST

And grades of Steel specially adapted for Lathe Tools, Chisels and Taps and Dies

Warranted most superior for TOOLS AND GRANITE ROCK DRILLS. A full assortment of this universally approved OLD BRAND and other Steels for sale by

EDWARD FRITH & SON, Agents,

No. 241 Pearl St., New York.

LABELLE STEEL WORKS.

CO.,

Also Springs, Axles, Rake Teeth, &c. OFFICE & WORKS, Ridge, Lighthill & Belmont Sts., & Ohio River, Allegheny. Post Office Address, Pittsburgh, Pa. Represented at Boston by WRTHERELL BROS., 21 Oliver St.; at Milwaukee J John Pritzlaff, 43 to 49 West Water St.; at Chicago by S. D. Kimbark, 80 to 84 Michigan Ave.

ALBANY & RENSSELAER IRON & STEEL CO., Walter R. Wood, Troy, N. Y.,

Office in New York City, 56 BROADWAY.

Bessemer Railway Steel,

MERCHANT BARS, TIRE AND SHAFTING,

Railroad Iron, Pig Iron, Merchant and Ship Iron, AGENCIES IN BOSTON AND PHILADELPHIA.

This Advertisement is Changed Every Week.

D. G. GAUTIER, Chairman.

CHAS, DOUGLASS, Gen'l Supt.

GAUTIER STEEL CO., LIMITED. BOYD



Fence Staples, Black or Galvanized, in 100 lb. kegs.

Staple Barbs, Coppered or

Galvanized. in 100 lb. kegs or as lb. boxes.

NEW YORK Eastern Office & Warehouse,

WORKS: JOHNSTOWN, PENN.

PHILADELPHIA OFFICE AND WAREHOUSE, 505 Commerce St.

97 John Street, NEW YORK,

Sole Manufact'rs of "CHOICE" Extra Cast Steel.

Manufacturers of all Descriptions of Steel.

Manufacturers of Every Kind of Steel Wire. Don Works, Sheffield, England.

OHAS. HUGILL, Agent.

C. WARDLOW, Sheffield, England,

Manufacturers of the Celebrated

Cast and Double Shear STEEL.

In Bars, Sheets and Coils, for fine Pen and Pocket Cutlery, Table Knives, Mining Tools, Dies, Files, Clock and other Springs, and Tools of every variety. Warehouse, 95 John Street, New York. WILLIAM BROWN, Representative.

FOREST CITY STEEL CO.,

Crucible Steel for Drills, Taps, Dies, Tools, Mill Picks, &c.

Testimonial of D. J. Jones, Roll Turner, Cleveland Rolling Mill Co.

"I have been testing the steel on chilled fron rolls along with the best English and American steels, and find it superior to any of them in every respect."

No. 13 Detroit Street, Cleveland, Ohio.

Steel.

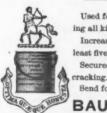
MUSHET'S Special Steel

LATHES, PLANERS, &c.

Sole Makers,

SAMUEL OSBORN & CO., Sheffield, England. Represented in the United States by

RANDALL & JONES, BOSTON.



ng all kinds of Steel Tools. least fivefold. Secures absolute safety from

BAUER & CO.,

96 Greenwich Ave., N. Y. Smery, Grindstones, &c.

GRINDSTONES.

Berea, O., Nova Scotia, & other brands 283 and 285 Front Street, New York.

WORTHINGTON & SONS North Amherst, Ohio.

Manufacturers of Lake Huron Amherst

and Berea



107th Street and Harlem River, Send for Illustrated Price List, NEW YORH.

H. S. WOOD & CO., Importers of

GRINDSTONES.

33 West and 58 Washington Sts., N. Y. ASHLAND EMERY CO.

CHARLES ALDEN, MANAGER. porters and Manufacturers of Puns TURKISH EMERY

A. A. IRVINE & CO., Agents, 14 MURRAY ST., NEW YORK.

EAMES' OIL FUEL PROCESS CO.

PETROLEUM IRON WORKS, Titusville, Penn.,



Petroleum Iron Blooms.

These Blooms are made from selected wrought scrap with petroleum fuel; can be used for making crucible steel, tack plate, horse shoes, boiler flange iron, &c., or for any purpose requiring a neutral, tough and uniform iron.



Janu

Gene

TH JO

WASHI ACCORD WOF

No

CAPACITY 17 Metro 37 Mitch

STEE

IROI

Steel R Steel Ste

PYRI

STE Standa

GI

Ph

Steel.

THE EDGAR THOMSON STEEL CO.,

LIMITED.

MANUFACTURERS OF

STEEL RAILS.BLOOMS & INGOTS

General Office and Works at Bessemer Station (Penn. R. R.), Allegheny County, Pa.

New York Office, 57 Broadway.

The Company warrants its rails equal in quality to any manufactured in the United States.

Branch Office and P. O. Address, THOS. M. CARNEGIE, Chairman.

No. 48 Fifth Ave., Pittsburgh, Pa. D. A. STEWART, Sec'y and Treas.

JOHN WILSON'S CELEBRATED

TRADE MARK PEPPERCORNS AND A DIAMONO. GRANTED A D 1766 BY THE

CORPORATION OF CUTLERS OF SHEFFIELD AND PROTECTED BY ACT OF PARLIAMENT REGISTERED ALSO AT WASHINGTON U.S.A. ACCORDING TO ACT OF

CONCRESS ALSO AT LEIPZIG, IN ACCORDANCE WITH THE GERMAN TRADE MARKS' REGISTRATION ACT.

BUTCHERS' KNIVES, BUTCHERS' STEELS, SHOE KNIVES.

It having come to the knowledge of JOHN WILSON that Counterfeit Butchers Knives, purporting to be of his manufacture, are being sold in the United States, he hereby cautions all purchasers of his Knives and Steels to be on the alert against such imposition.

JOHN WILSON also hereby gives Notice that it is his determination to institute Lega-Proceedings against any person or persons who may be detected infringing his Trade Mark. Every article of JOHN WILSON'S manufacture, bears the Trade Mark, in addition to the Name.

WORKS:-SYCAMORE ST., SHEFFIELD, ENGLAND. Established 1750

North Chicago Rolling Mill Co.

ESTABLISHED 1847. Works at Chicago, III., and Milwaukee, Wis.

MANUFACTURERS OF MERCHANT BAR, FISH PLATES, PIG METAL,

IRON RAILS & BESSEMER STEEL RAILS.

CAPACITY OF WORKS.

Merchant E Pig Metal...
Iron Rails...
Steel Rails. [Total Capacity per year OFFICES:

17 Metropolitan Block, Chicago, Ill. 37 Mitchell Block, Milwaukee, Wis.

THE

STEEL COMPANY OF SCOTLAND, LIMITED,

(SIEMENS' PROCESS,)

MANUFACTURERS OF

Steel Rails,

Steel Ship Plates,

Steel Blooms for Rails,

Steel Blooms for Wire,

Steel Angles,

Steel Boiler Plates,

Steel Wire Rods,

Steel Forgings,

Steel Locomotive Fire Boxes,

Steel Castings.

JAMES LEE & CO., Resident Agents for the United States,

72 Pine Street, New York. PYROLUSITE MANGANESE COMPANY,

MINERS, DEALERS AND EXPORTERS OF HIGH TEST Crystallized Black Oxide of

anganese

IN CRUDE STATE. altable for the manufacture of Ferro-Manganese, Spieg

STEEL, GLASS, PAINT, VARNISH and DRYER MAKERS, OIL BOILERS, &c.
MANUFACTURERS OF SUPERFINE FLOATED

Standard Barytes, Gritless Ochre, Borate of Manganese, &c. Office, 54 Cliff Street, New York.

Philadelphia Smelting Co., S. E. Cor. Twelfth and Noble Sts., PHILADELPHIA.

GENUINE BABBITT,

Guaranteed at a speed of 10,000 a minute, and at any pressure for 10 years.

DEOXIDIZED BRONZE,
Superior to Phosphor Bronze or any other alloy of Copper and Tin for Machine

PHILADELPHIA, October 4, 1879.

Deliphia Smelting Company, City.—Gentlemen: After a trial of eighteen months of your righted Bronze "as journal boxes in our rolling mill, where great pressure is required, we casure in recommending it as being superior to any we have heretofore used.

Very truly,

HENRY DISSTON & SONS.



"THE BOSS" JACK-SCREW.

R. D. WYNN.

Windsor, Vt., U. S. A.,

Sole manufacturer of the above Screw. Indorsed by buildas above. (Please say The Iron Age.)

VIRE NAILS

French Points,

Window Shade Nails,

Upholstering, WAGON NAILS, Molding Nails

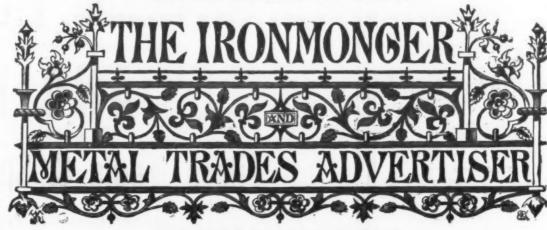
Electrotype,

Roofing Nails,

ls, Cigar Box Nails, &c., &c., put up in bulk, 5 lb. package , : lb.

AMERICAN WIRE NAIL CO. Factory, Fifteenth and Madison Sts.

ESTABLISHED IN 1859.



PUBLISHED EVERY SATURDAY.

THE OLDEST AND CHIEF REPRESENTATIVE OF THE IRON, HARDWARE AND METAL TRADES.

OFFICE: 44a CANNON STREET, LONDON, E. C.

ADVERTISEMENTS AND SUBSCRIPTIONS ARE RECEIVED AT THE VARIOUS OFFICES OF "THE IRON AGE," NAMELY;

NEW YORK OFFICE: DAVID WILLIAMS, Publisher of The Iron Age, 83 Reade street.

PITTSBURCH OFFICE: 77 Fourth Avenue-JOS, D. WEEKS, CINCINNATI OFFICE: Builders' Exchange-T. T. MOURE. HORSON, Manager.

South Fourth Street—THOMAS SOUTHERN OFFICE: Cor. Eighth and Market Streets, Chaktanooga Tenn.—S. B. LOWE, Manager.

SPECIAL FEATURES.

Notes of Novelties.—This is a department of the journal always watched with interest by the trade, as it contains an account, from week week, of the novelties which manufacturers and inventors are introducing to the notice of the trade. These articles are freely illustrated.

Special Correspondents.—The Ironnonger has a deserved reputation for its special correspondence from all the principal Continental, British and manufacturing centers. The writers are gentlemen holding important positions in the districts with which they are connected, and possess facilitie for acquiring information specially suited for the columns of the Ironnonger The Week, Legal News, Trade Notes, Bankruptices, Foreign Notes, Colonial Jottinus, Merchants' Circulars. Imports and Exports, &c., are each departments of the journal, containing a digest of all matters of direct interest to the Iron, Hardware and Metal Trades. In addition to the above, there is a carefully classified list of Patents, together with Editorial Notes, French, Belgian and other Special Correspondence.

to the Ironmonger and Metal Trades' Advertiser, with which is sent every fourth week the Foreign Supplement (see below), may commence from any date, but are not received for less than a year complete. The rate is \$5 per annum, inclusive of postage to any part of the world outside Great Britain, To every subscriber is presented, free, in the course of his year, a handsome and useful Ironmongers' Diary and Text Book, a work sold to non subscribers at 75 cents.

ADVERTISEMENTS

are inserted in the Ironmonger and Metal Trades Advertiser at the subjoined rates, from which no variation can be made on any ground whatever.

Size of Page-Nine Inches Deep by Six Inches Wide.

One Advertisement of every Series of 13 Monthly, 27 Fortnightly, or 53 Weekly, will be inserted in the Ironmongers' Diary and Text Book, published toward the end of each year, and presented to every Subscriber.

	53 INSERTIONS, each net.	27 INSERTIONS, each net.	13 INSERTIONS, each net.	7 INSERTIONS, each net.	insertions, each net.	insertions, each net.	I INSERTION, net.
One page	13.15 9.75 7.00	Gold. \$18.75 14.10 10.25 7.50	Gold. \$20.00 15.00 11.00 8.00	Gold. \$22.50 16.90 12.40 9.00 7.25	Gold. \$25.00 18.75 13.75 10.00 8.00	Gold. \$30.00 22.50 16.50 12.00 0.60	Gold. \$35.00 26.25 19.25 14.00
Quarter page One-sixth page. One-sixteenth page.	3.95 3.15	6.00 4.25 3.40 1.90	6.40 4.50 3.60 2.00	5.10 4.10 2.25	5.65 4.50 2.50	6.75 5.40 3.00	7.75 6.25 3.50

SPECIAL ISSUES.

er Pig, &c. Also, fine ground In April and October of each year there is published a Special Issue, the circulation of which is not less than Twelve Thousand (12,000) copies

THE IRONMONCERS' DIARY AND TEXT BOOK.

This is an annual, presented free to every Subscriber to the IRONMONGER AND METAL TRADES' ADVERTISER. It contains a large number of ruled skeleton pages for diary and other entries, and in addition much useful reference information, varied from year to year. It is handsomely bound in cloth, gilt; and as copies are used in thousands of establishments for a whole year, it is obviously a medium of exceptional value for advertisements. Sold to non-subscribers at 75 cents.

THE FOREIGN SUPPLEMENT

is published every fourth week in connection with the extensive and world-wide circulation of the *Ironmonger* itself. The dates of its publication in 1879 will be as follows:

JANUARY 11, FEBRUARY 8, MARCH 8, APRIL 5, MAY 3 and 31, JUNE 28, JULY 26, AUGUST 23, SEPTEMBER 20, OCTOBER 18, NOVEMBER 15.

This Supplement is published in

FIVE LEADING COMMERCIAL LANGUAGES

of the world, including English, and is sent to all the countries where they are spoken, thus placing the contents of the Ironmonger not only within reaction out in the native language of eighty millions of German, forty-two millions of French, twenty-eight millions of Italian, and fifty-one millions of Spanish speaking people; or, in all, over two hundred millions of inhabitants in the principal nations where the best purchasers of manufactured goods are to be found. Advertisements are inserted in any language at the following

MODERATE TARIFF.

Size of Page-13% Inches Deep by 9% Inches Wide.

	13 INSERTIONS, each net.		INSERTIONS, each net.		13 INSERTIONS, each net.		INSERTIONS each net.
One page Two-thirds page Half page One-third page	22.00 17.00	Gold. \$33.75 24.75 19.15 14.10	Gold. \$37.50 27.50 21.25 15.65	Quarter page. One-sixth page. One-sixteenth page.	7.50 6.20	Gold. \$11.25 8.45 7.00 3.40	Gold. \$12.56 9.40 7.75 4.00

ers, railroad and mining men as the best screw jack in the market. Also manufactures Press Screws, Lard and Wine Fresses, Tackle Blocks, &c. Circulars and prices, address

THE WHOLE FOREIGN HARDWARE TRADE,

THE WHOLE FOREIGN HARDWARE TRADE,

Agents. Pugsley & Chapman, 8 Liberty St., New York. Sam'l May & Co., 16, 18 & 20 Oliver St., Boston.

Sam'l May & Co., 16, 18 & 20 Oliver St., Boston.

Auger Bates Cook' Watr Benja Grisw Cook' Jenni Bonno Stear

Balan

Bells. Bevin Swiss

Angular,

Cast Lo

Blind B Parker. Clark. Shepard Lull & F Huffer's Chains. Galvanii Best Pro

Chisels.-Socket F Butcher' Casters.-Plate....

Coffee M Enterpri Cutlery.-Landers, Goodno facture

Drawing Hart Mfg. Adjustabl

Ocks and l Branford... Gaylord Ca American I

Lanterns, Square Cand Tubular...

Philadelphia

Lawn and G Holland Pate

Long and She

Meat Cutters Dixon's.....

lew York To

Rules.—Stanl Stanley Ivory

Rowland S

Oliver Ames and Irons.— Mrs. Petts' Pi

Turkey Oil St. Hindo itan Oil

Screws. Flat Head Iros Bra Round Head B

B. KREISCHER & SONS,

FIRE BRICK.

BEST AND CHEAPEST. Established 1845. Office foot of Houston Street, East River, NEW YORK.

NEWTON & CO.,

ALBANY, N. Y., Manufacturers of

BRICK FIRE

Stove Linings,

Range and Heater Linings

Cylinder Brick, &c., &c.

M. D. Valentine & Bro

FIRE BRICK And Furnace Blocks DRAIN PIPE & LAND TILE. Woodbridge, - - - N. J.

BORGNER & O'BRIEN.

FIRE BRICK

Edge Pressed Furnace Blocks, CLAY RETORTS, TILES, &c., Twenty-third Street,
A: : Twenty years' practical Experience.

PERTH AMBOY TERRA COTTA CO.,

A. HALL & SONS, Perth Amboy, N. J., ARCHITECTURAL TERRA COTTA

FIRE BRICK.
170 Broadway, NEW YORK.

Brooklyn Clay Retort

FIRE BRICK WORKS.

Watson Fire Brick Manufactory

OHN R. WATSON. Ferth Amboy, New Jersey.

FIRE BRICK,

For Bolling Mills, Blast Furnaces. Foundries, Gas Works, Lime Kilns, Tanneries, Boller and Grate Setting, Glass Works, &c. FIRE CLAYS. FIRE SAND, AND KAOLIN FOR SALE.

HENRY MAURER, Excelsior Fire Brick & Clay

Retort Works, BRICK AND CLAY RETORTS. WORKS PERTH AMBOY, NEW JERSEY Office & Depot: 418 to 429 East 23d St., N. Y

TROY FIRE BRICK WORKS

JAMES OSTRANDER & SON, Manufacturers

FIRE BRICK, Tuycres, Tiles, Blast Furnace Blocks, etc. Miners and Dealers in Woodbridge Fire Clay and Sand, and Staten Island Kaolin.

Established 1864. GARDNER BROTHERS, MANUPACTURERS OF

STANDARD SAVACE Fire Brick, Tile & Furnace Blocks,

Clay Gas Retorts and Retort Settings,

Miners and Shippers of Fire Clay. OFFICE: 376 Penn Ave., Pittsburgh, Pa. Works: Mt. Savage Junction, Md., and Lockport, Pa

HALL & SONS,

BRICK FIRE

Buffalo, N. Y.

MILLER'S BRICK PRESSES

FIRE and RED BRICK And Brickmakers' Tools in General. SAML. P. MILLER & SON, 309 South 5th St., Philadelphia.

W. & J. TIEBOUT,

Brass, Galvanized & Ship Chandlery Hardware,

No. 200 Pearl Street, New York

DUC'S IMPROVED

NICHOLSON FILE CO.,

FILES AND RASPS.

Filers' Tools & Specialties.

Manufactory and Offices at Providence, R. I.

The following space will be used in illustrating our specialties, the matter being changed weekly.

IMPROVED BUTCHERS' STEELS.

Patented December 25th, 1877

REGULAR STEEL.

PATENT STEEL.

We give herewith an illustration showing two forms of Butchers' Steels-

In the sharpening of knives two operations are essential: First, that of

The Patent Steel, above illustrated, is designed to perform both of these

grinding or otherwise bringing the blade to a thin edge, after which it is to be

operations, being provided with two oppositely located cutting or abrasive surfaces, and two oppositely located smooth or finishing surfaces; the object being

that the knife may be brought to an edge upon the abrasive surface, and by a

slight turn of the wrist the steel changed into such a position that the knife may

be brought to bear upon the two finishing surfaces, without further change or

of stock, and of the same style of finish, which we call our Regular Steel, whose

entire surface is drawfiled or stripped, after the manner of the well-known

cially for this purpose, and are finished and mounted in a style unequalled in this

line of goods; the handles being enameled in imitation of horn, jet and rosewood. Every steel stamped with our brand is warranted hard and free from

In addition to the improved pattern, we make a steel from the same quality

The steels are manufactured from a superior quality of stock, made espe-

We are now prepared to furnish the Regular or Patent Steels, in lengths of

whetted, or its edge finished down to a proper condition for cutting.



THE STORE-HOUSE BUCKET.

In 19 in., 14 in., 16 in. and 17 in. Sizes.

Send for Circulars

Made of Best Charcoal Stamping Iron. No Corners to Catch. Light Running and Very Durable. The only Scientifically Constructed Elevator Bucket in the Market.

T. F. ROWLAND,

CONTINENTAL WORKS, Brooklyn, E. D., N. Y. reulars. NEW YORK OFFICE, NO. 8 BROAD ST.

Sole Manufacturer,



MILL BUCKET. In 3% in. to 10 in.

EAD

MANUFACTURERS OF Pure White Lead, Red Lead, Litharge, Orange Mineral, Linseed Oil, AND PAINTERS' COLORS

John T. Lewis & Bros No. 231 South Front St.,

PHILADELPHIA.

BRANS

WHITE

TRADE MARK.

LEW18

Brooklyn White Lead Co.



White Lead, Red Lead & Litharge. 89 Maiden Lane, NEW YORK FISHER HOWE, TREASURER.

JOHN JEWETT & SONS WHITE LEAD.



LINSEED OIL. 182 Front Street, NEW YORK.



The Atlantic White Lead and Linseed Oil Co.,

Lead (Atlantic), Re Litharge & Linseed Oil. ROBERT COLGATE & CO., 287 Pearl Street, New Yor



DUNBAR BROS.,

Clock Springs and Small Springs BRISTOL, CONN.

Torrey's Door Springs. P. R. DUNNE,

Bradley's Edge

10 or 12 inches, put up in lots of one-half dozen each.

the Regular and Patent Steel.

trouble on the part of the operator.

"Wilson Steel."

Butchers' Cleavers, Butchers' Choppers, Axes and Hatchets, Grub Hoes and Mattocks, Mill Picks, Box Chisels and Scrapers,

Ax Eye Bush Hooks, Socket Bush Hooks, Watt's Ship Carpenters' Tools, Carpenters' Drawing Knives, Coopers' and Turpentine Tools.

MARTIN DOSCHER, Agent, 96 Chambers Street, N Y.



Established 1838. Bevin Bros. Mfg. Co., Easthampton, Ot SLEIGH BELLS House, Tea, Hand,

Gong Bel's, te. Bell Metal Kottice

1880.

narge

RS Co.

narge.

ONS

YORK.

Lead

S.,

Springs

Flat Head Iron

Round Head Brass Iron

January 8, 1880.	
PHILADELPHIA.	Spoons. Plated German
(Corrected Weekly by Lloyd, Supplee & Wallon.) Terms, 30 days. For 60 or 90 days, interest added at 10 per cent. per annum.	Tinned.
A pvils. Peter Wrights, # b	Springs. Philade Chatfiel Gem Co
Eagle (American)	Stocks a Stove Po Dixon Onyx
Little Favorite, corer and slicer "7. to net Lots of 10 to 25 dozen special price. Axes. Land Wayrioz per doz & so sonet	Tacks, Shoe N
A xes. Mann's Red Warrior. per dox. \$0,00net Red Indian. \$1 0,00 net Red Chieftain, beveiled \$1 0,00 net Crown Prince. \$1 10,00 net	Traps. Genuine lm. One Viscs.—S
A sgers and A uger Bits. Bates' Nut Augers	Wrench Coes' Go
Crown Prince 10.00 net	Philada Wire, Bright o
Light and Commondis 20&10 %	Coppered Tinned Calvani Wringer Novelty
Bells. Bevin Bros. Mfg. Co. Light Hand Bells	Novelty Univers Peerless
" No. 3. " % " 12.00) Bering Machines. Upright, with Augers. List \$8.50 dis 40 % " 5.00 dis 40 % " 5.00 dis 40 %	
Bering Machines. Upright, with Augers. Upright, with Augers. List \$8.50 dis 40 \$ 5.00 dis 40 \$ Angular, with Augers. Solitary of the Second Sec	TERMS rate of ex- cent. for c of invoice
Backus dis 50 @ 50&10 % Spoffard dis 50 & 50&10 %	114 to 4 by 414 to 6 by 134 to 6 by 134 and 15 1 and 15 56, 34 and
Butts, Cast Fast Joint, Narrow. dis 902to %	
American Ball	3\6 to 6 1\6 to 3\6 1 1 to 1\6 1 3\6 to 3\6 5\6 and 3\6
Loose Joint dis 50&10 %	
	3 to 5 114 to 25 1 to 15 1 to 15 1 to 15 1 and 7 3 and 7 5 and 1 5 and 1
1870 dis 35 @ 405 Galvanised Pump.	% and of and is and is and is
Socket Firmer. dia bokso \$ Butcher's \$5.00 to \$ gold Casters Bed dia 25&to \$ Plate dia 25&to \$	% and 9 % and 13 1 and 13 1 to 2, % and 9 8 and 13 2 and 13 1 and 13 1 and 14
Butcher's. \$4.00 to £ gold Casters.—Bed. \$dis 25&to \$2 gold Casters.—Bed. \$dis 25&to \$5 caftee Mills.—Box and Side. \$dis 25&to \$5 cafterprise. \$dis 25 cafte	1 and 1 1 to 2, 2 to 3 to 1-10e indicated
Hart Mfg. Co.'s	1 to 134. 2 to 254. 234 to 334. 334 to 4 434 to 5
Fry Pans. Tinned	16 to 116
Burnisseu # dos. \$\frac{1}{2}\times 0 \ 375 \ 425 \ 475 \ 5-35 \ 6.00 \ 7.00 \ 8.00 \ 9.00 Fo 0	36 to 136 in 36 to 36
Files .dis 35 g Nicholson .dis 35 g Disston .dis 35 g Disston .dis 35 g Butcher .dis 30 g Spencer .dis 30 g 475 & Spencer .dis 30 g	% to 1% b Wagon B
Spenorr	No. 10 to 1 No. 15 to 1 No. 18 to 2 No. 22 to 1 No. 25 & 2
Nammers,	No. 22 to 1 No. 25 & 2 No. 27 No. 28 All shee
Yerkes & Plumbdis 33 1/3 %	not leas t
Strap and T	1-16 to 1/4 i Piow Stat Win
Hinges. Strap and T. Horse Natis. Nos. 5 7 8 9 to Ausable. Pol'ed & Pi'd and Blued and Pointed. 31 28 26 25 24 23 (jobe. New list 26 23 22 20 19 18 17 Polished & Pointed. 22 20 19 18 17 Polished & Pointed. 23 22 20 19 18 Southern, all sizes. Discount on Ausable and Clinton, 20 5; Globe, 105 Locks and Knobs.	216, 3, 316 116, 116, 2 116 inch.
Discount on Ausable and Clinton, 20 %; Globe, 10% Locks and Knobs. Branford	196 03 38
Locks and Knobs Branford	8 lbs. to
♥ dos	Rail, 450 e 316 by 16 a 216 and 3 l 216 by 5-16
Lanterns. Equare Candle and Oil. F dox	1% to 2 by 1% by % a
Holland PatentList \$5.00 dis 20 \$	Juniata N Norway Guard Iro
Mattocks. Long and Short Cutter	Drag Bar Dropper I Cylinder Plow Bea
Molasses Gates. Enterprise Mfg. Co.'s Measuring Faucetsdis 20 % Exterprise Mfg. Co.'s Measuring Faucetsdis 20 % Stebbins' Gatesdis 5,5&10 % Lincoln's dis 5,5&10 % Landers, Frary & Clark's Petroleumdis 20 % Brass Liquor Cocksdis 20 % Cork Lined dis 7,5 % Cork Lined dis 7,5 %	Nos. 14 to Nos. 21 to
Cork Lined .	Commo 30&10 %.
American dia 25 % Stuffers dis 26 % Enterprise Stuffers dis 26 % Planes,—Ohio Tool Co. dis 30 %	No. 20 No. 21 & 2
Color Color Color Color Color	Solid Wro
Enterprise Stutiers	Deck Bear Channel I
Pumps.—Bickford	r in.xr in. Equal Sid
Stanley Ivory	Unequal S Square Re Star Iron, Sash Iron Miscellan
# dos\$8.00 10.25 13.75 45.50 16.75 19.50 Lbs\$0 100 150 200 250 300 Squares. Steel and Iron	Special
Try Squares, Stanley	rod to 60 8d and 9 6d and 7
Scythes.—Golden Chipper, Damascus Iniade, Boxed and Sharpened. Clipper No. 16, Bronsed Blade, Boxed and Sharpened 4 dos \$8.50 net Clipper No. 5, Paintod Red, Boxed and Sharpened 4 dos \$8.50 net	T in
Disston's Circular	Casir rod to 30d
Rowland. dis 40 % Oliver Ames & Sons, new list. dis 15 %	4d
Sad Fons. 4 to 10 lbs. 33%	3h in Clinch—A. Cut Spikes

		Т
	Spane	
Supplee & Walton.) s, interest added at 10 num.	Spoons	36 to 5-16 to 14 to 15 t
	Springs. — Torrey.	Ore
per dox 85.00 net 6.00 net 7.00 net 7.50 net	Stove Polish Gem 0 gross, \$4.50, dis 5 % Dixon 6.00, dis 10 % Onyx 84.00 @ 4.25 net	5-16 34 8 1 to 7-32
orice.	Tacks. Brads. &c. dis 40 % Shoe Nails—4-8 and larger, 6c; 3½-8, 7c ₩ b net Double Pointed Tacks. dis 40% 5 %	7-32 C
ro oo net	Genuine Oneida—Newhouse	Sol "In Sof Lai Cir
dis 40&10 S dis 50 S dis 50 S dis 15 S dis 15 S dis 30&10 S dis 40&10 S dis 50 S dis 50 S dis 50 S dis 50 S dis 60 S	Wrenches, - Agricultural dis '05 % Coes' Genuine dis 40 % " Mechanics" dis 50 % " Mall. Bar dis 70 % Philada. Tool. Co., Duplex dis 37 %	For Fire
	Wire, Bright or Ann'd, No. o to 18 dis 45 @ 47\6 \$ " No. 19 to 26 dis 55 @ 57\6 \$ " No. 27 to 26 dis 60 @ 62\6 \$ Coppered, o to 18 dis 40 @ 42 \$ Tinned Broom Wire dis 55 \$ Galvanised, No. 7 to 18 Market List, dis 37\6 \$ Wringers.—Novelty No. 10 ₱ dos \$60.00 net	Pia Ho
nd Bellsdis 70 %	Coppered, oto 18	to t Be
nd Bellsdis 70 %low list dis 50 %	Wringers — Novelty No. 10. Wringers — Novelty No. 10. Wringers — Novelty No. 10. Good Second to Novelty No. 2. No. 2 Peerless, No. 256. No. 2 Good net No. 2 Goo	Fu
each, \$7.50 9.00 12.00 dis 25 %	PITTSBURGH.	Gu Spi Sai Pti
" 5,00 dis 40 % " 10,25 dis 40 % " 6,75 dis 40 % dis 65 %, cash new list dis 60&5 % dis 45 %	Merchant Iron. TERMS.—Note or acceptance at 6c days, with current rate of exchange on New York, or a discount of 2 per cent. for cash, fi remitted within 10 days from date	Ro. Spi
	or invoice.	En
dis 50 % wdis 30&10 % dis 40&10 % dis 45&10 %	1½ to 4 by \$6 to 1 inch	6 t 8 t 15 t 24 t
18 a f ds f s f s f ds f s f s f ds f s f ds f s f	78, 74 and 74 by 74 by 80 M Heavy Banda. 114 to 6 by 14 and 5-16 inch	Ju
dis 40&10 \$dis 40&10 \$dis 50&10 \$dis 50&10 \$	8 to 6 by 1/4 to 3·16	Str
dis 50&10 % dis 50&70 % dis 50&70 % dis 60&70 % dis 40 %	\$ 100 6 by \$\frac{1}{6}\$ to \$3.16\$. \$3.80\$ \$ 100 6 by \$\frac{1}{6}\$ to \$3.16\$. \$3.80\$ \$ 100 6 by \$\frac{1}{6}\$ to \$3.16\$. \$3.80\$ \$ 100 6 by \$\frac{1}{6}\$ to \$2.16\$. \$4.00\$ \$\$ 100 \$\frac{1}{6}\$ to \$2.5\$ by \$\frac{1}{6}\$ to \$3.16\$. \$4.00\$ \$\$ 1 to \$\frac{1}{6}\$ by \$\frac{1}{6}\$ to \$5.16\$. \$4.00\$ \$\$ 1 to \$\frac{1}{6}\$ by \$\frac{1}{6}\$ to \$5.16\$. \$4.00\$ \$\$ 1 to \$\frac{1}{6}\$ by \$\frac{1}{6}\$ to \$1.60\$. \$1.00\$ \$\$ 4.00\$ \$\$ 1 to \$\frac{1}{6}\$ by \$\frac{1}{6}\$ to \$1.60\$. \$1.00\$ \$\$ 4.00\$ \$\$ 1 to \$\frac{1}{6}\$ by \$\frac{1}{6}\$ to \$1.60\$. \$1.00\$ \$\$ 2 to \$\frac{1}{6}\$ to \$1.60\$. \$1.00\$ \$\$ 3 to \$\frac{1}{6}\$ to \$1.60\$. \$1.00\$ \$\$ 4 to \$\frac{1}{6}\$ to \$1.60\$. \$1.00\$ \$\$ 5 to \$\frac{1}{6}\$ to \$1.60\$. \$1.00\$ \$\$ 5 to \$1.00\$. \$1.00\$ \$\$ 5 to \$1.00\$. \$1.00\$ \$\$ 5 to \$1.00\$. \$1.	P
Coil, new list Oct. 22,dis 35 @ 40%	\$\chi_{\phi}\$ and \$\chi_{\chi}\$ by \$\chi_{\phi}\$ to 3:16	Lit T fro
h. 716 634 616 gold 36 7-16 15 in. dis 60&10 % dis 60&	Hoop from.	be
dis 25&10 %	\$\\ \text{and II-10}, \qq \qua	63
ssell & Co., Lamson & den Cutlery Co., Manu-	Dounds and Courses	11 1 18 2 15 3 26 3
dis 60&10 %	1 0 134	30 J 30 J
dis co \$ 5 0 7.50 9.00 10.00 4 5 6 7 8 5 0 10.00 5 6 7 8 8 0 0 7.00 8.00 9.00 4 5 6 7 8	76 to 156	61
dis as % dis 30 % 	\$\frac{1}{2}\text{to 1}\frac{1}{2}	26 2 26 2 26 2 30 2
each to se die se f	Common Channel Suntate	30 2 34 3 36 2 A gla
2.85 Bet 3.50 dis 10.5 c.50 dis 20.5 DB	No. 10 to 14	inc
dis 20 %	Tank Iron	H
6 7 8 9 10 5 27 24 24 23 22	3-6 to 54 in. thick	4
38 26 25 24 23 23 21 30 10 18 23 20 19 18 17 23 21 30 19 18 23 21 30 19 18 25 25 \$\mathbb{R}\$ B 12C, net linton, 20 \$\mathbb{S}\$; Globe, 10\$\mathbb{S}\$	256, 3, 356 and 4 inch. 4.30 126, 136, 2 and 234 " 4.30 134 inch. 4.40 134 by 1 inch, for Plow Handles. 4.80 135 by 34 " 4.80 136 by 34 " 4.80 137 by 34 " 4.80 138 by 34 " 4.80 139 by 34 " 4.80 130 by 34 " 4.80	ı
dis 25&2 % c sh	1	1
61 63 63 dls 50 %	8 lbs. to the yard	W Bra
No. 1, \$10.15 \(\) doz net oz. net. 11a	Cast Chairs and Splice Joints for 12, 16 and 30 lb. Rail, 450 each; 36 and 40 lb. Rail, 550 each; 36 by 46 and 46 lb. Rail, 550 each; 36 by 56 and 56 lb. Rail,, 70 24 and 5 by 56 "12 and 16 lb. Rail, 500 24 by 516 "8 lb. Rail, 5.10 Flat Rails.—Punched and Countersunk.	in to
dis 30&10 %	Flat Ratis Punched and Countersunk. 1/4 to 2 by ½ to ½ inch. 4.00 1/2 by ¾ and 7-16 inch. 4.20 1/4 by ½, 7-16 and ½ inch. 4.50 Juniata Nail Rods. 7.50	spi wit scr che
List \$5.00 dis 20 \$	Guard Iron, %x%x% and %x%x%	V
ng Faucetsdis 20 %dis 55&10 %dis 55&10 % oleumdis 20%10 %	Plow Beam Iron. 400 Wood's Patent Planished Sheet. st quality (A). 1016(12d quality (B). 1016	Kn Bu
dis 35 % dis 70&10 % Meat Cutter .dis 50 % dis 25 % dis 25 %	Nos. 14 to 20.	
w list, dis 40, 2&10 cash dis 25 % dis 25 %	Roofing Iron, Corrugated or Crimped. Galvanized Common. Black. No. 20	9
dis 30 %dis 40 %dis 30 % in ro daysdis 40 % dis 25% to %	Carnegie Bros. & Co.'s list.	
dis 25& 10 \$dis 10& 10 \$	Solid Wrought Iron Beams, 3 to 10\frac{1}{2} in 30 ft \(\psi \) \(
	Tee Iron. P B 4 C	
	1 in.xi in. to 5 in.x3 in	SA MA
300 250 300	Nails.	ſ
; full case, dis 50&10 %	rod to 6od \$\\$\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	
Boxed and	76 " 7.25 1 186 " 5.25 1 1	
18 35 % die 25% die 25% dis 24% Tooth dis 24%	Finishing. 13½ to 13½ in. 6.2 1½ " 8.25 2½ " 5.75 1¾ " 5.50 1½ " 5	
dis 40 % dis 15 %	36 in 8.75 1/4 in 10.65	
" sho net	Clinch=All sizes	
" 180 net " 180 net " 180 net " 100 al. onet " 20 dis 331/60 10 %	5d. Stating. 6.00 4d 5.25 3d 7.25 4d 70bacco. 8d 5.00 10d 6.00 445 6d 10 7d 5.00 10d 1.00 5.00 Each haif keg to cents extre. Terms.—Note or acceptance at 6 odays; or a discount	
dis 45 %	TERMSNote or acceptance at 60 days; or a discount	V

	THE IRON AGE
dis 40, 585 5 5 dis 55 dis 5	Best Refined Cast Steel. Square, Flat, Octagon and Round. 36 to 2 in
₩ dos \$2.50 net ## dos \$2.50 net ## dos \$3.50 \times dos. dis 25,5 ## dos \$5.50 \times dos. ## dos \$5.50 \times dos. ## dos \$5.50 \times dos. ## gross, \$4.50, dis 5,5 ## gross, \$4.50, dis 10,5 ## dos \$4.50, dis 1	Machinery Steel. Ordinary sizes, ¾ to 2 in., Round, Square, Flat and Octagon
dis 4085 5 dis 4085 5 t qual dis 50 5 t qual dis 70 5 list dis 35 5 dis 40 5 dis 50 5 dis 70 5	Agricultural Steels. Agricultural Steels. 4 to 15 by 3:16 to 34 in. 756 "Iron Center Plow, 4 to 16x3-16 to 34 in. 856 Soft Steel Center Plow, 4 to 16x3-16 to 34 in. 856 Soft Steel Center Plow, 4 to 16x3-16 to 34 in. 9 c Landside and Cultivator, C. 8., 5 in. thick. 856 Circular Plow Coulters. 5-32 to 34 in. thick. 256 Scythe Back. 7 c Fork and Rake. 7 c Fork and Rake. 7 c Fork and Rake. 7.6 Fore Eace Teeth, to length. 7566 Cornstalk Cutter beveled. 756 Cornstalk Cutter Steels. 756 Cor
dis 45 @ 47 4 \$ dis 55 @ 57 4 \$ dis 60 @ 62 4 \$ dis 60 @ 63 5 \$ dis 60 @ 53 5 \$	ist qual. 2d qual. 3d qual. Bessemer. 10 to 20 gauge. 130. extra for each additional gauge. 21 to 20 gauge, 10. extra for each additional gauge. Beveled Hoe and Shovel Steel.
63.00 net 60.00 net 60.00 net 63.00 net	Rells and Castings. Furnace, Floor and Straightening Plates
60 days, with current or a discount of 2 per n 10 days from date	Pulleys up to 30 inches 45 c c c c c c c c c c c c c c c c c c
3-7c 	6 to 7 in. diam., 7 to 20 in. long
3.8c 4.0c 4.9c 4.9c 4.9c 4.9c 4.9c 4.9c 4.9c 4.9	White and Red Lead. Strictly Pure White Lead in Oil, in kegs, in lots of 500 h and over, 8%c; loss than 500 h, 90; in 25 and 50 h Tin Palls, 560. Who over keg price; 12% h Tin Palls, 640. Who have keg price; assorted, 1 to 5 h, 100 h Chases, 110. Dry White Leadless taan 500 lbs8%c; over 500 lbs7%c Orange Mineral, genuine, in kegs, 100; in barrels, 9%c Red Lead, very brilliant, 7%c; "7%c; "56%c Terms: Note at sixty days, or if paid within 15 days from date of invoice, a discount of 12% per cent. will be allowed, but not otherwise.
	Window Glass. Per Box of 10 Feet.—Discount to 16. Single Strength.
9 lighter than above area. 9-16	6 x 8 to 10 x 15. 88.2 87.50 87.50 86.50 11 x 14 to 16 x 24. 9.21 8.92 8.00 7.35 8.70 15 x 14 to 16 x 24. 9.21 8.92 8.00 7.35 15 x 15 to 20 x 25 0. 10.71 9.77 9.70 9.00 8.70 7.71 9.00 8.00 15 x 15 to 20 x 25 0. 12.50 11.50 11.50 9.75 9.00 8.00 8.00 10.00 x 25 0. 12.50 11.50 11.50 9.75 9.00 8.00 15 0.00 x 25 0. 12.50 11.50 11.50 11.75 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.0
420 470 Round. 500 650 450 Common. Charconl. Juniata.	18 ± 27 ± 60 ao x ± 90 17.28 15.75 14.00 15 ± 28 ± 60 ao x ± 90 17.28 15.75 14.00 15 ± 28 ± 60 ao x ± 90 19.75 17.28 15.75 14.00 20 x ± 8 ± 60 ao x ± 40 20 20 19.75 17.25 15.75 26 ± 36 ± 60 ao x ± 44 23.35 21.25 17.25 26 ± 46 ± 60 ao x ± 64 23.35 21.25 17.25 26 ± 60 ± 60 ± 60 ± 60 ± 60 ± 60 ± 60 ±
4.80 6.80 6.00 7.00 6.90 7.90 6.40 7.40 6.70 7.70 6.90 7.90 7.30 8.30	An additional to per cent, will be charged for all glass more than 40 Inches wide. All sizes above 52 inches in length and not making more than 51 united inches, will be charged in the 54 united inches bracket.
over 30 inches wide,	HYATT'S PATENT SPRING BOLT.
078. 4.8c 078. 4.9c 4.3c 4.3c 4.4c 4.4c 4.6c 4.8c 4.8c 4.8c 4.8c 4.8c 4.8c 4.8c	
3.8c	Patented Jan. 29th, 1878. For Fastening Cabinet Ware, Closet and House Doors, &c. We call the attention of the trade to these Wrought
300 carb. 1.70 carb. 1	Brass and Iron Bolts, as being the best and cheapest in the market. Sizes, two inches and upward, both plain and neck bolts. Two screws fasten the bolt and bed-plate to the wood; no others are required; the bed-plates are made of brass, from which the spring is cut and raised, upon which the bolt aides with an easy, elastic movement, saving expense of screws and producing a strong, handsome and cheap Bolt. Price list furnished on application. BRASS GOODS MFG. CO., 43 Chambers St., New York.
4.3c 4.0c hod Shoet, ality (B)9kc	We also manufacture all kinds of Brass and Tin Goods, Drop Bases, Thimbles and Roses for Door Knobs, Plate Escutcheons, Brass Labels, Patent Mirror Business Cards, &c.

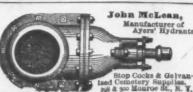
THE UNIVERSAL LIFTING JACK,

wagons, heavy loaded teams fire engines, railway cars, &c. Four sizes, with patent rubber cushions; will not mar the finest painted carriage. DINSMORE MFG. CO., 235 Washington St., BOSTON.

Silver medal awarded by assachusetts Mechanic haritable Association. FOR SALE BY

ARGENT & CO., 27 Chambers St., New York. ACOMBER, BIGELOW & DOUSE, 156 Oliver St. Boston.





GOLD'S PATENT HEATERS

"HEALTH."

"TUBULAR," Ample Discounts to the Trade.



"HYGEIAN,"

Special Rates to Agents

"PERFECT."

The Best Heaters in the World. AND THE

KEYSER "PEACE MAKER" HEATERS.

Gold's 624 to 642 East 14th St., New York.

AXLES, SPRINGS, TOOLS, MACHINERY, CARRIAGE MAKERS' SUPPLIES.

Guy C. Hotchkiss, Field & Co.



FOR MELTING ALL KINDS OF METALS,

Sunny Side Stove Polish.

Lumber Pencils, Foundry Facings and Lubricating Plumbago

WILE, SIEDEL & CO.,

Nos. 1324, 1326, 1328, 1330, 1332 & 1334 Callowhill St., Phila.

Messrs. HALL & CARPENTER, 709 Market St., Phila.



FOREPAUGH, JR. & BROS.



Presses. Beach's Patent Self-Centering Chucks, Center and Adjustable Drill Chucks, Solid and Shell Reamers. Drill Grinding Machines. Taper Reamers, Milling Cutters and Special tools to order.

All Tools exact to Whitworth Standard Gauges.

GEO. R. STETSON, Supt.

EDWARD S. TABER, Treas.

IVES' PATENT BURGLAR PROOF DOOR BOLT.

Can be applied wholly by

against burglars or tramps.

TO THE HARDWARE TRADE.—I invite the attention of the Hardware trade to my PATENT DOOR BOLT. Important features in this invention are its mode of application, sure protection and pleasing finish. Put up in boxes, one dozen each, nickel plate and bronze.

Agents, GRAHAM & HAINES, 113 Chambers St., New York.

A. T. YOUNG, 36 Pearl street. Boston; LATHAM & MATTHEWS, N. E. cor. Sixth and Commerce streets, Philadelphia, Pa.: POTTER & COPELAND, 21 E. Congress st., Detroit, Mich.; JOHN A. BIGELOW, 120 Water street, Cleveland, Ohio. Send for Price List.

HOBART B. IVES, Sole Manufacturer, 137 St. John St., New Haven, Conn.

GEO. M. SCOTT, Bellows Manufacturer. Johnson Street, CHICAGO, ILL.

Janu

ICE CHAIN.

We are prepared to furnish promptly all kinds of

Flat Link Chains.

We have a book showing 100 different sizes of Links, which will be sent upon application.

Providence Tool Co.,

PROVIDENCE, R. I.

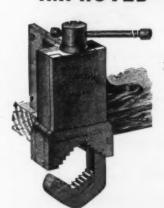
Boston Agency, 13 & 15 Pearl St. J. H. WORK.

New York Agency, II Warren Street, HENRY B. NEWHALL.

Chicago Agency, 63 & 165 Lake St. S. H. & E. Y. MOORE.

POCKET NO. 2.

POCKET BOLT



STRONG. LIGHT, EFFICIENT, CHEAP.



ANCOAST & MAULE,

Wheeler, Madden & Clemson

MFG. CO., MIDDLETOWN, - - - NEW YORK.

Of every description, including

Circular, Shingle, Cross-Cut, Mill, Hand, WOOD SAWS, Etc., Etc.

AMERICAN SAW CO.,

Movable Toothed Circular Saws, PERFORATED CROSS-CUT SAWS

And SOLID SAWS of all kinds.

IMPORTANT TO RAILWAY COMPANIES, CITIES AND MINE OWNERS. Blake's Challenge Rock Breaker or Sec-

tional Gushioned Crusher,

Nov. 18, 1879, will be found the most economical and reliable crusher
d to the public for crushing railway ballast, road metal, stone for
quarts, filmt, emery, corundum, feldspar, baryta, manganese, plaster,
&c., &c. This machine dispenses with cast from frame and pitman
forms. All strains are on wrought iron or steel.

dedals, including Paris Gold and Silver Medals. Address,

BLAKE CRUSHER CO., Sole Makers, New Haven, Conr.



THE E. HORTON & SON CO.,

Windsor Locks, Conn. this date a discount of 30 per cent will be made from the price

HORTON LATHE CHUCK.

also manufacture the **Sweetland Improved Chuck.** 1, 1879. Send for Price List.



TURNED MACHINE SCREWS, One-sixteenth to five-eights diameter. Heads and points to sample. IRON, STEEL and BRASS.

JOHN FELLOWS,

Successor to LYO N & FELLOWS.) Factory and Office, 14 Dunham Place, Williamsburgh, N. Y.



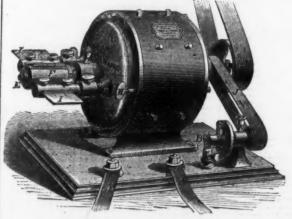
Manufacturers of GALVANIZED PUMP CHAIN FOR CHAIN PUMPS.

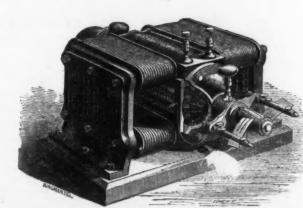


Expanding, Self-Draining RUBBER BUCKET.

286 Washington Street, Newark, N. J., U. S. A.,

Machines for Electric Light, Electrotyping and Electro-Plating.

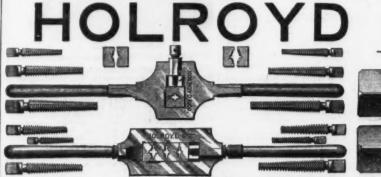




THE MOST POWERFUL, SIMPLE AND COMPACT ELECTRIC LIGHT

By actual tests this machine has been found to yield more than double the amount of light per horse-power obtained from the st machines built in this country. Please send full particulars regarding buildings or localities to be lighted, available power, &c.

Centennial Gold Medal American Institute, 1876. Medal of Superiority, American Institute, 1877. Centennial Medal, Philadelphia, 1876. Paris Medal, 1878.







Adjustable

For Pipe and Bolts,

Have the following advantages : 1st .- The Armstrong Improved Dies can be adjusted to the variations in the size of fit-

tings. 2d.—The Armstrong Dies, by reason of their peculiar cutting edge, can be worked with much less labor, and accomplish the desired results in less time, than with the solid

Die.

3d.—The Armstrong Dies have a double taper, that is, the taper at the entrance for the first few threads is greater in degree than the standard taper, which forms a lead to the Dies, causing them to start on the pipe without filing, even when there is a swell or burr, and requiring no pressure whatever to start the Dies on the pipe.

4th.—The Armstrong Dies being made in two parts instead of one (as in the solid Die), can be more perfectly constructed; the cutting edges reached more directly; the work done with greater precision and uniformity, by which they accomplish a much better result.

sult.

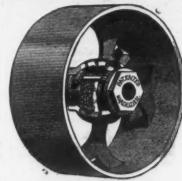
5th.—The Armstrong Dies can be sharpened without drawing the temper, and can be kept in good condition easier and with less expense than any other Dies ever offered to the public. A mechanic can sharpen these Dies, and is not obliged to send them to the manufacturer, as is the case with solid Dies when they become dull.

6th.—The Armstrong Dies are interchangeable in the stock, and although adjustable, do not need adjusting to cut the standard size for which the dies are made. The adjusting is only done when the irregularity or variations in the fittings make it necessary. There are corresponding marks (s) on the Stock and on the Dies (S) and when these marks are brought into line the Dies will cut the standard size.

For sale by leading dealers in Hardware and Steam and Gas Fitters' Tools. For further

For sale by leading dealers in Hardware and Steam and Gas Fitters' Tools. For further particulars address,

F. ARMSTRONG, Bridgeport, Conn.



SELF-LUBRICATING

oose Pulleys. W. OESTERLINE,

29 Allison St., CINCINNATI, OHIO. Send for Circulars and Price List.

HYBRAULIC JACKS AND PUNCHES,



Raising Heavy Weights, Punching Iron, &c.

HYDRAULIC PRESSES On hand and made to order. Second-hand Hydraulic Presses bought and sold. Machinery for Polishing and Buffing Metals. Send for Cir-

E. LYON & CO., 170 Grand Street, NEW YORK.

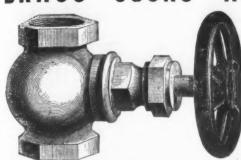
THE "OLD RELIABLE"

UNIVERSAL

Clothes Wringer.

McNab & Harlin Mfg. Co.,

BRASS COCKS AND VALVES.



For STEAM, WATER

and GAS. Iron Pipe and Fittings.

PLUMBERS' MATERIALS New Illustrated Catalogue and Price List sent by express to the Trade on ap-

Factory, Faterson, N. J.

Improved with Rowell's Double Cog-Wheels or oth ends of each roll.

Universal"

Over 500,000 sold! And now in use, giving "Universal" satisfaction

EVERY WRINGER WARRANTED.

Be sure and inquire for the "Universal." Sold by the **Principal Jobbers in Hard-**ware and House-Furnishing Goods verywhere.

Special rates given for export.

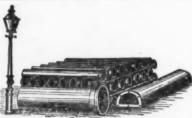
Metropolitan Washing Machine Co.

32 Cortlandt St., New York. WM.S. CARR & CO.



CARR'S PATENT Water Closets.

PUMPS, CABINET WOOD WORK, &c 106, 108 & 110 Centre Street, Factory, Mott Haven, NEW YORK.



Philadelphia,

Cast Iron Pipe FOR WATER AND GAS. Lamp Posts, Valves, &c.,

Mathew's Pat. Anti-Freezing Hydrants



HAWES' STEAM

TRAP

Welch & Lawson, 176 Centre st.,

See first issue of The Iron Age each month for illustration of

HARPER'S Engines. WESTVILLE, CONN.

JUST PUBLISHED-SENT FREE. Complete History of Wall Street Finance, containing valuable information for investors. Address Baxter & Co., Publishers, 17 Wall street, New York.

SPECIAL NOTICE.

The undersigned, in view of the International Exhibitions to take place in Australia, begs to inform his friends that he continues to make translations of Catalogues, Prices-current, Circulars, Correspondence, &c., from and into the ENGLISH.

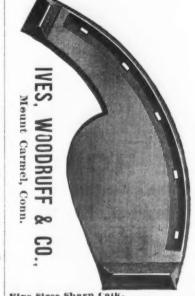
GERMAN, PORTUGUESE

and that he bestows special attention upon a strictly correct rendering of Technical Expressions in matters relating to Macaninery, Metallurgy, Hydraulics, &c The very best reference withe furnished from leading manufacturers in this city, Philadelphia and elsewhere, for whom he has translated. If desired, estimates will be procured for the setting up, electrotyping and printing of catalogues, &c., in the above languages.

c. KIRCHHOFF, Metal Reporter of The Iron Age, 83 Reade St., New York.



STEEL TOE CALK.



Five Sizes Sharp Caik.

Five Sizes Stub Calk.

Send for Circular.

STEAM PUMPS,

STEAM ENGINES,

HOISTING ENGINES.

The Norwalk Iron Works Co.,

SOUTH NORWALK, CONN.

BOSTON.

	BODIOI.	Plated Ware.—Rogers & Brodis 25& 10 %
	Reported by Macomber, Bigelow & Dowse, 156 to 164 Oliver St.	Please - Voin Cleff & C. S. How Lock & S. Pilers - Voin Cleff & C. S. Gold Lock & S. Pilers - Voin Cleff & C. S. Gold Lock & S. Button's Wire Pilers. Gold Lock & S. Gold Lock & S. Button's Wire Pilers. Gold Lock & Co. Glis 6 & S. Pecket Knives. American Shear Co. S. Gold Lock & G. Pecket Knives. American Shear Co. S. Gold Lock & G. Potato Diggers. W. C. & Co. reduced list . Glis 4 & Potato Diggers. W. C. & Co. reduced list . Glis 4 & Potato Diggers. W. C. & Co. reduced list . Glis 4 & Fulleys & Acme or Excelsior, 15 in
	Anvils,—"Eagle American"	Pocket Knives.
	Anvils, "Eagle American". \$\Pi\$ no. dis 20 \(\frac{\chi}{\text{Apple Parers}} \)—Reading Turn Table. \$\Pi\$ no. dis 20 \(\frac{\chi}{\text{Apple Parers}} \)—Reading Turn Table. \$\Pi\$ doz \$\frac{\chi}{\chi} \) doz \$\frac{\chi}{\chi} \] Goodel Turn Table \$\Pi\$ Fush-off \$\pi\$ 5.50 ** Improved Turn Table & Fush-off \$\pi\$ 5.50 ** Lightning \$\pi\$ 6.50 ** Alkeu's Toois. \$\dis 20 Ais of Signature Province Apple Sig	Potato Diggers.—W. C. & Co. reduced listdis 4.
2	" Lightning 6.50	Acme of Excelsion, 1% in
•	Aiken's Tools	Pulley Blocks
	No. 1. \$4.50; 2. 3.75; 3. 3.00 each	Pumps. Union Manufacturing Co.
	Augurs & Bitts.—Snell's Auger	" Pitcher Spoutdis 40 %
	Jenning's Bittsdis 10&10&10 %	Rivets.—Black
5	Stearns Hollow Augersdis 40 %	Carriage in 10 % papers
*	Gimletsdis 40 %	Razor Strops.—Torrey'sFull lire
. 9	Bonney's 60 10 10 10 10 10 10 10 10 10 10 10 10 10	Sadirons, -Common
)	Pierce's Bitts	Laundry B 3146
	Cook* Bitta dis so steams Hollow Augers dis so steams Brepardson's Double to Hitts dis so steams Better and Steams Bretanson Hollow Augers per dos 33.00 Pierce's Bitts dis so store in the sound district dis so store in the sound district	Enterprise. "Potts"dis 256210 6
	Handledper doz 10.00	Hopkins & Dickinson'sdis 40 %
'	Ax Handles.—	M. B. & D
)	Oak Extra, 31 in., No. A @ dos 82.25	Sash Weights.—Patent Eye
	Ax Handles Oak Extrs, 3t in., No. A F dos 2.28 10, No. B F dos 2.59 34 in., No. B F dos 2.59 34 in., No. B F dos 2.00 34 in., No. C F dos 2.00 34 in., No. C F dos 1.38 4 dos 2.00 F dos 1.38 4 dos 2.00 F dos 1.38 F dos 2.00 F do	Wheeler & Clemsondis 30
ap	31 or 34 in., No. C	W. M. & C. Common Tooth, O. Most Sec
is-	Balances.—Chatillon'sdis 20&10 %	Disston's, Common " Foot 440
at h-	Cast Angle (for Anti-Friction Hangers)per ft. 3c	Boynton's Lightning " Foot 440
re	Wrought "per ft, 16, 40; 56; 50; 84, 60	W. M. & Co.'s. Circular Saws
m	Bailances.	Saw Sette.—Spring Lever
	Japanned M. B. & D., reduced list, 1879dls 33½ % Brass 1879dis 25 %	Saw Blades, -Disston,
n,	Blind Fasts,—Lock Fasts & C sets \$5.00 No. 6 Fasts & C sets \$5.00	Welch & Griffith, Extra dos 10 %
	Veasie Fasts	Scales.—Fairbanks
	Blind HingesMall. Hook, 3 holes P C sets 6.50	Howe
or	Phoenix Adjustable	American Flat-Head Irondis 50 %
	Common	Round-Head I Iron
	Boring Machines.—Eagle Uprighteach, \$2.75	Grilley "Nickel-plated Plano, dis 55&5 %
	Snell Augers	Scythes.—Clippers, in boxes & doz \$8.cc
	Braces.—Barber's	Watrous. dis 15 %
1	No. 6 Fasts. # C sets 5.50 Veasie Fasts. # C sets 5.50 Shedd's. # C sets 5.50 Shedd's. # C sets 5.50 Brad A wi Handles. # C sets 5.50 Brad A wi Handles. # doz 82.00 Bolts. Norway Iron Carriage. dis 60 % 10 % Common dis 70 % Borax. Refined. # b 100 Borax. Refined. # b 10	Shot.—Tatham's
ш	Demas Lathe and Scroll Saw 6.50	O. Ames, other brands, new list
	Steel Frame, with patterns # dos 6.50	Oxford, Birmingham Patterndis 15 %
	New Rogers, all ironeach, \$2.25	Shates.—Union
	Griffith's patent	Stock and Dies king's
	Bronzed Sneu, M. B. & D. list	Pittsfield
-	Bronzo Hardware Norwalk Lock Co. New list, dis socto \$	Swedes Iron
ıg	Bracket Saws.—Holly Scroll Saw each 2.2 Demas Lathe and Scroll Saw 6.5 Bracket Saws, extra quality, to No. 8 gro 8c.75 Stoel Frame, with patterns. 9 dos 6.5 New Rogers, all iron each, 8c.25 Bracket Saw Bindes, Griffith's patent. 9 gross 75c Bracket Saw Bindes, Griffith's patent. 9 gross 75c Brackets.—M. & B. Flower Pot. dis 50x10 % Bronzed Sacu, 18. B. & D. Hst. on new Hst Bronze Hardware.—Norwalk Lock Co. New Hat, dis 50x10 % Butts.—Union Fast Joint. 4 dis 50x10 % Butts.—Union Fast Joint. 4 dis 50x10 % Butts.—Union Sat Joint. 4 dis 50x10 %	Gimp and Lace
CR	" Japanned Acorndis 55&10 %	All balances on list
-	Butts, - Union Fast Joint 118 sparts 118 sparts 128 sparts 1	Section
	Wrought Brassdis 45 %	Tree Scrapers No. 1. dis 40 & 5 %
	Wrought Bram date 47 Carriage Jacks. "Cimas," No. 1.	No. 2 @ doz. \$2.co
la	NO. 2 12.00	Vises.—Simbson's Adjustabledis 25&10 %
0	No. 1each, \$2.00	P. 1. & Co., Solid Blacksmiths' new listdis 3319 %
11-	** No. 1	Suctors dis 25 % Prentiss' dis 25 % Weather StripsPackers. dis 0.5 % Brownes Flexible Rubber 6 doz \$4.50
1	No. 4	Browne's Flexible Rubber
	10.4 6.00 6.00	Weather Strips.—Fackers. dis 0.5 Brownes Flexible Rubber. dis 0x \$4.6 Brownes Flexible Rubber. dis 0x \$1 Brownes Flexible Rubber. dis 0x \$1 Brownes Flexible Rubber. dis 0x \$2 Local Rubber. dis 0x \$2
	" Cotton	Valentine's Felt Moulding
	Casters.—Red and Table	Window Springs
2	614, 10, 4, twisted F pair coe	Wire Goods - Gate Hooks and From 2 gross 4.14
0	Co 2-16 Pair oc	Wrenches - A G Coe's dis 60% to %
81	5 16 34 D 8140	Girard Mfg. Co
O-	76	Wringers, -Universal, No. 2
18	ChalsWhite, Carpenter's # B 6140	Novelty, No. 10
8	Red, Carpenter's	NO. 22
	Chisels.—Hart, Bliven & Mead, Framingdis 65 %	No. B
	Buck's Shank, Framing	Novelty Set Tub. E
-	Galvanized Wire, 100 feet each	Keystong, Wood Frame No. 14 dos 54.50
	Japanned	Wenches
	Corper Rivetsdis 40 \$	Unique, No. 1
	Colthes Line.— Galvanized Wire, 100 feet each \$\psi\$ dox \$\psi_1\$, \$\colon \text{Holes.}\$ "Dover."—Galvanized list net Japanned list \text{List to Coffee Mills.}\$—New list dis 40 \$\colon \text{Holes.}\$ "Cores dis 30 \$\colon \text{Cores.}\$ "Brass. I. F. & C dis 35 \$\colon \text{Cores.}\$. Track. usual trade dis 10. \$\psi\$ 11450 \$\text{Juts.}\$	Zinc
	Jute D D 90	dis 40 %. Special rate for Export.

	35
Cow Tles. No. 30, 3 ft. No. 6 Wire, with toggie. No. 35, 3 ft. " with snap. No. 40, 35 ft. " with toggle. No. 45, 35 ft. " with snap. No. 50, 4 ft. No. 4 with snap. No. 50, 4 ft. No. 4 with snap. No. 50, 4 ft. " with snap. No. 60, 45 ft. " with snap. No. 60, 45 ft. " with snap. No. 60, 45 ft. " with snap.	dis 25 %
No. 40, 3½ ft. " with toggle No. 45, 3½ ft. " with snap	# doz 3.90 # doz 4.10
No. 50, 4 ft. No. 4 With toggle No. 60, 41/6 ft. " With snap with toggle	P doz 4.75 P doz 4.75
No. 65, 456 ft. with snap Crow-Bars. Cast Steel	n doz 4.62
Cutlery Pocket, American Shear Co.'s	dls 40 %
Cutlery.—Pocket, American Shear Co., Butcher Knives, "Woods," Lap Bols Square Handle. Steak Knives.	ter, dis ggt4 %
Lar dolster, Oval Handle	dis 25 %
Sutcher, Common Round Handle, "Woo Shoe Knives, "Woods"	ds"dis 25 %
Dividers.—Cook's Dog Collars.	dis 25 5
Square Handle Steak Knives. St	dis 14
Gem Coll Crown.	dis to 4
Door Stops.—" Thurston's"	V doz 82.25 dis 50 %
Drills.—Morse Bitt Stock	dis 25 %
Alden's	P 15 10C
Alden's E ametica Ware Standard Mig Co. Kettles. Standard Mig Co. Kettles. Felloe-Plates.—Wrought. Files.—Madden & Csekayne American File Co. Nicholson Fluting Machines. Enox, with 6 inch rolls.	dia 408:10
Files.—Madden & Cackayne American File Co.	dis 25 %
American File Co. Nicholson Flutting Machines. Knox, with 6 inch rolls. Geneva Forks. W. C. & Co., Manure. Limite: Birrs. Genuins German, No. 125, 1-32 to 8-32	dis 25 %
Geneva	
Genuine German, No. 125, 1-32 to 8-32 Pierce's	per doz \$1.00
Gines Cutters.	
Combination Class Cutter and Knife ener K. P. & Co.'s No. 2. Hammers Maydole's. Hammond's. Hangers & Rollers Anti-Friction Acme Rollers	₩ doz \$1.00
Hammond's	dis 20 %
Climax. Common.	dis 45 %
Hatchets.—C. F. Dowse Underhill.	dis 20 %
Hav Knives.—Lightning	doz 818.00 net.
Providence Plate	dis 35&10 %
HoesW C. & Co.'s. Hooks and StaplesBrewers'	dis 40 %
National Finished	.19dis 25 %
No. 6, 23; No. 7, 21, No. 8, 20; Knobs. — "Norwalk." Now less	No. 9, 19.
Hanger & Rollers.—Anti-Friction. Acme Rollers. Climax. Common. Hand Screws. Hatchets.—C. F. Dowse. Underhill. Hav & Hives.—Lightning. Fisher's Patent. Hinges.—Strap and I (new list). Wrought Screw Hook. Hoes.—W. C. & Co. S. Hooks and Staples.—Brewers'. Hooks and Staples.—Brewers'. Horse Nails.—No. o. 7 8 National Finished. 25 23 22 Horse Nails.—Bridgewater. No. 6, 25, No. 7, 21, No. 8, 20; Knobs.—Norwalk. New list. Silver Glass. Bilver Glass. Bilver Glass. Bell Pulls. Lanterns.—Tubulars. Railroad. Oil, No. 45. Triangular. Huricane. Lead.—Sheet. Pipe. Lead.—Norwalk Genuine Bronze Gooks.—Norwalk Genui	P doz \$10.5
Lanterns,—Tubulars, No. o Beacon Light Railroad, Oil. No. 42	# doz 8.05
Triangular. Hurricane.	# dog 4.00
Pipe	₽ 10 8 d
Eagle Cabinet	dis 25 %
Metallic Sieves — Mann's Patent	dis 1085 %
Manure Forks W. C. & Co Mattocks K. P. & Co., Long Cutter	dis 40 %
Measuring Tapes.—Eddy's.	# doz 10.84
Meat Cutters.—Miles' Challenge Hale's, (New list)	dis 30 %
Money Drawers.—Tucker's Alarm Mouse Traps.—Delusion	
Nails. Zinc and Tip	doz 1.75 teg, rates 3.60
Brass and Copper Ox Bows.—Extra finished and varnish	dis 3315 % eddis 20 %
134 In., 4 dos. patr. 35.75 2 in., 4 dos. 134 In., 4 dos. 236	pair\$9.00
Harricane. Lead.—Sheet. Fipe. Norwalk Genuine Bronze Google Cabinet. Fipe. Norwalk Genuine Bronze Google Cabinet. Trunk. W. Wilcox & Co., Fadlocks. American Lock Co., Steel Key. Metallic Sieves.—Mann's Patent. Manure Forks.—W. C. & Co. Mattocks.—K. P. & Co., Long Cutter. K. P. & Co., Short Cutter. Measuring Tapes.—Eddys. Meat Cutters.—Miles Challenge. Halo's, (New list) Challenge. Patens.—Extra Inslated and varnish tyle. Wilcox & Co., New Lextra Inslated and varnish tyle. Wilcox &	# doz \$7.50
Planes, Greenfield Tool Co. 650 7 B	dos o io
English Iron.	dis 20 %
Pilers. Vom Cleff & Co.'s Button's Wire Pliers	
Pocket Knives. American Shear Co 's	o. dia ostro s
Pocket Knives. American Shear Co.'s. Potato Diggers.—W. C. & Co. reduced Pulleys	listdis 4. %
Pulley Blocks	per dos 250 280
Pumps.—Union Manufacturing Co. Iron Cistern.	dis 40 %
Copper. Rivets.—Black	dis 40 %
Carriage in to b papers	dis 30 %
Rules.—StanleyBoxwoo	dis soute
Potato Diggers.—W. C. & Co. reduced Pulleys Acme or Excelsior, 134 in. Pulley Blocks. 2 in. Pumps.—Union Manutacturing Co. Fron Fitcher Spout. Copper. Rivers.—Black. Carriage in 10 b papers. Copper. Razor Strops.—Torrey's. Rules.—Stanley	N B 3140
Enterprise. "Potts".	dia 25/k10 %
Sandpaper.—Baeder & Adainson M. B. & D	dis 40 %
Sash Weights,Patent Eye	dis 252 €
Cross-Cut Saws. W. M. & C., Common Tooth.	
Disston's, Common "	Foot 38c
Boynton's Lightning "M. B. & D., Hand Saws	foot 450
W. M. & Co.'s. Circular Saws. Richardson Bros.	dls 40 %
Saw Biades, - Disston	doz \$10.0c
Welch & Griffith, Extra	doz 88.40
Howe	dis 20 %
American Flat-Head Iron	dls to %
Grilley " Nickel placed 100	dis 25 %
Scythes.—Clippers, in boxes	nmon.dla so 4
Watrous.	dis 15 %
Shot.—Tatham's	P 7590
M. B. & D. Oxford, Birmingham Pattern	dis 15 %
Sadirons,—Common Laundry, Tailor's Geese. Enterprise, "Potts" Sask Locks,—King a Hutchinson's, ne Hopkins & Dickinson's, and Hopkins & Dickinson's, and Hopkins & Dickinson's, and Hopkins & Dickinson's, Sask Weights,—Patent Eye. Sasw,—Hand Saws, Diaston's, Wheeler & Clemson Cross-Cut Sawe, W. M. & C., Common Tooth, 'o. Champion ' Disston's, Common ' Gi. American Boynton Lightning, W. M. & Co.'s, Circular Saws, Richardson Bros. Saw Setts,—Spring Lever. Saw Hit des,—Disston W. M. & Co.'s, Circular Saws, Richardson Bros. Saw Setts,—Spring Lever. Saw Hit des,—Disston W. M. & Co.'s, Circular Saws Richardson Bros. Saw Hit des,—Disston W. M. & Co.'s, Circular Saws Howe. Serews,—Aiken's Flat Head Iron, American Flat-Head Iron, Scribes,—Cippers, in boxes, Grilley Watrous, Shears,—American Shear Co, new Het. Shot,—Tathan's, Shears,—Alled & Son's, Achiele & Son's, Achiel	dis 45 %
Shovels.—Mallead's tips. Santes.—Union. Acme. Acme. Facis.—A. Field & Son's. Pitsfield. Swedes Tinned. Swedes I fon. Gimp and Lace. Copper Tacks. Alf balances on list. Af paps.—Onelda, Genuine.	dis 10 %
Pittsfield	dis 40&10 \$
Gimp and Lace	45810 \$
Alf balances on list	408:10 %
All balances on list Fraps.—Onelda, Genuine. Onelda, Imitation, H. & N. Blake's. Free Scrapers.—No. 1. No. 2. No. 2. Local Scrapers.—No. 1. No. 3. Howard Vise Co.	dis 40 & C
No. 2 No. 3	. # doz. \$2.00 . # doz 3.00
Howard Vise Co	dis 25&10 g
Sutton's	dia 20 %
Prentiss'. Veather Strips.—l'acker s. Browne's Flexible Rubber. In 20 feet boxes; No. 1, ½ in. wide, ₩ ya	doz \$4.50 dis 30 \$
a first and the second of the	was rous NO.

56 John Street, N. Y. NUT CO., STANDARD Pittsburgh, Pa.,

MANUFACTURERS OF HOT PRESSED

Square & Hexagon Nuts, R. R. FISH BARS,

BOLTS.

SPIKES,

RIVETS, &c.

B. WALBRIDGE, No. 103 Chambers St., New York.



Cuts Round and Flat Iron.

MANUFACTURER OF

Punch 1/4 to 1/4 in., 1/4 in. Plates. Shears for Plates and Lyon's Patent Hand and Power DRILLS, SHEARS AND PUNCHING PRESSES.

For Workers in Iron and Steel, adapted to all trades.

CUYAHOGA WORKS

MANUFACTURES STEAM Hammers

LAND Marine Engines,

BLAST FURNACE Machinery. Send for Circulars.

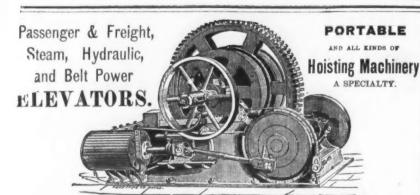
Cleveland, Ohio, U. S. A.

THE J. MORTON POOLE COMPANY, Lubricator for Steam Wilmington, Delaware,

Patent Roll Grinding Machines

greater degree of accuracy is obtained, and as very much less metal is removed from the roll by the grinding operation, the rolls will last much longer. Our Grinding Machines produce perfectly at work, and will grind either straight or hollow.

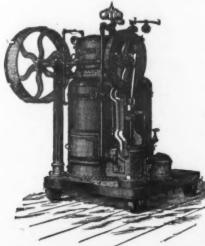




IRON FURNACE HOIST.

For Handling Stock to Top of Stack with One or Two Platforms.

STOKES & PARRISH, 3001 Chestnut St., Philadelphia.



d Feb. 10, 1874. Reissued June 22, 1875. Compact, Practical, Durable and Economical.

MANUFACTURED BY

SHAPLEY & WELLS,

Binghamton Iron Works, Binghamton, N. Y.

Stationary Engines and Boilers.

Also Machinery for Mills of all kinds and Tanneries. Also their celebrated Bark Mills, acknowledged to be the best. Send for reduced price list circular.

JOHN ADT, BUILDER OF MANUFACTURERS' TOOLS, New Haven, Conn., U. S. A.

Automatic machines to straighten and cut wire of all sizes to any length; to cut and mill wire for butt pins, bolt shanks and similar articles; to make all kinds of ordinary staples, with either square, fleam, chisel or shear points; to make all kinds of barbed staples, including those used for blinds; to roll points on picture nails and similar articles without the use of heat; to cut and form wire into various shapes and sizes, such as rings, buckles, fence barbs and the like; combined hand and power machines for straightening and cutting wire, and machines to straighten and cut wire by hand; a variety of roll and rotary wire straighteners; machines for riveting together articles of hardware; to drill butts and other hardware; to mill butts; to drill or countersink several holes at one time, close together or at some distance apart, on a regular or irregular line; for grinding, buffing and polishing; foot, hand and power presses, and dies and tools for the same, to order; also modifications of any of the above, for special purposes.

CHUCKS.

F. CUSHMAN.

Hartford, Conn., U. S. A.

Independent 4-Jawed Chucks, from 6 in. to 24 in. in diameter. Common Lever Scroll Chucks, from 3 in. to 24 in. Patent Geared Chucks, from 3 in. to 12 in. Common Geared, from 2 in. to 12 in. A large variety of Chucks for Amateurs' Foot Lathes. Drill Chucks for all kinds of machines and purposes. Patent Geared Chucks for Hollow Spindle Cutting-off Machines. Bench and portable Centering Chucks, and special chucks made to order. Satisfaction guaranteed. All of the above are from new patterns, with every improvement a long experience can suggest. Send for price list.



938 to 954 River St. & 67 to 83 Vail Ave., Troy, N. Y.,

VALVES.

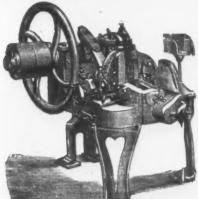
ouble and Single Gate, % in. to 48 in.—outside and inside Screws, Indicator, &c for Gas, Water and Steam. Send for Circular.

Also FIRE HYDRANTS.

THORNE, DeHAVEN & CO., Drilling Machines,

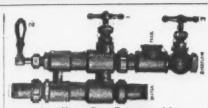
21st Street, above Market, Philadelphia.

PORTABLE DRILLS. Driven by power in any direction.
RADIAL DRILLS. Self-feed.—Large Adjustable Box Table.
VERTICAL DRILLS. Self-feeding.
MULTIPLE DRILLS. 2 to 20 Spindles.
HORIZONTAL BOSING AND DRILLING MACHINES.
HAND DRILLS. CAR BOX DRILLS.
SPECIAL DRILLS. For Snemal Work.



PITTSBURCH MFC. CO.

Manufacturers of Nail and Spike Machines, Boltz. Nuts. Washers, Rivets, &c. Castings, Forgings and Blacksmith Work promptly attended to. OFFICE & WORKS, Ballroad St., near 28th, Pittsburgh, Pa



THE HANCOCK INSPIRATOR,

New Combined Pump and Injector.

page all other appliances hitherto introduced for

g Steam Rollers. A Portable Boiler is not per

rithout one. It lifts its water 25 feet with a low

pressure, and puts it directly lato the Boiler. No adjustment necessary for varying steam pressures G. W. STORER, General Agent, 140 N. 3d st., Phila

Manufactured by Crane Bros. Mfg. Co., CHICAGO.



A. S. CAMERON'S

Is the Standard of Excellence at Home and Abroad.

For reduced price lists address A. S. CAMERON, East 23d Street, New York.

Babcock & Wilcox Water-Tube Ste

In Sections Easy of Transportation. No Bolted, Screwed or Packed Joints. All Joints Made by Expanding Wrought Iron Tubes into Bored Holes.

Can be Erected or Repaired by Ordinary

Mechanic.

EXPLOSIONS.

Easily Cleaned from Soot or Sediment. Adapted to all kinds of Fuel. Steady Water Line and Dry Steam. No Leaks from Unequal Expansion.

> Rapid Steaming. Highest Attainable Economy.

CENTENNIAL EXPOSITION MEDAL AWARDED THIS BOILER FOR HIGHEST ECONOMY AND EFFICIENCY ON TEST.

Illustrated Circulars and other desired information promptly furnished.

BABCOCK & WILCOX, Engineers, 30 Cortlandt St., N. Y.

& Williams, PRESSES and DIES



SPECIAL MACHINERY

WORKING SHEET METALS, &c. FRUIT & othe CAN TOOLS MEDAL AWARDED

Plymouth, Pearl and John Streets, BROOKLYN, N. Y

PARIS EXPOSITION, 1878.



COOKE

or to COOKE & BEGGS).

Agent for the

HOPE

AND A PATENT

STEAM TUBE CLEANER.

Working on an entirely new principle

DEALER IN

Railway,

Steamship,

Manufacturers'

Mill and Miners

SUPPLIES.

6 Cortlandt Street, NEW YORK, N. Y.

Catalogue on application.

LANE & BODLEY CO.,

STEAM ENGINES, SAW MILLS AND MINING MACHINERY.

LANE & BODLEY COMPANY, Cincinnati, Ohio.



NO WATER. AIR ENGINES. NO ENGINEER. No extra insurance ! Absolutely safe! Simple! Reliable! Durable! Most convenient and economical power known.

SHERRILL ROPER AIR ENGINE CO., Manufacturers of Air Engines, Elevators and Hoisting Machinery 91 & 93 Washington Street, New York.

BOLT Proprietors of National Head,

Mfrs. of Hand and Power Bolt and Pipe Cutters, Bolt Pointers, Bolt Headers. Nut Machinery, Hot and Cold-Pressed Taps and Dies, &c. Cleveland, Ohio. Bend for Circular.

P. BLAISDELL & CO.,



MACHINISTS'

Blaisdell's Patent Upright Drills, With Quick Return Motion.

Engine Lathes, Planers, Boring Mills, Gear Cutters and Hand Lathes,

WORCESTER, MASS., U. S. A.

ISSUE



THE PRATT & WHITNEY CO.,

Hartford, Conn., U. S. A.,

Make specialties of

DROP HAMMERS Punching Presses, Hand Drilling Machines, Ratchet

Drills, Combination Lathe Chucks, Cutters for Teeth of Gear Wheels, Screw Plates, Hand, Machine, Nut and Pipe Taps, Bolt Cutters, &c., &c.



WEST READING PIPE AND MACHINE WORKS, Cast-Iron Water and Gas Pipe of all sizes. Valves and Hydrants, Flange Pipe and Lamp Posts. Machinery for Grist, Saw and Rolling Mills. Also the celebrated CANADA WATER WHEEL, the cheffest and best in the world. Send for pamphlets. READING PA.

ROCK BREAKERS.

Blake's Patent Expired-End of Monopoly. The undersigned, sole owners of the old Leviathan, Gates patent, and the Brown's patent Rock
breakers, will guarantee our crushers to break
two tons to one of Blake's (or any other.) Send
for circulars. Also Stamp Mills and all kinds of
Mining Machinery made on short notice.

Office, 52 Canal Street, Chicago, Ill.

GATES & SCOVILLERON WORKER GATES & SCOVILL IRON WORKS.

Shafting, Pulleys,

Hangers, etc.,

a specialty. Send for Price List to

A. & F. BROWN,

57-61 Lewis St., New York.

Machinery, &c.

THE JUDSON **GOVERNOR.**

It is a common method to advectise Governors without cost, unless satisfactory to the customer, and then charge High Prices for doing what any good Governor will do. Various Governors inferior to the "Judson" are sold in this way, operating well enough for three months, to insure collection of the pay, but becoming uscless after a year's wear—their construction lacking durability. The Judson Governor is guaranteed to not only the best Regulator of Steam Engines, but also the most durable Governor made. Parties in buying other Governors should stipulate that their durability be guaranteed, and should also take care that they do not, for much inferior Governors, pay higher prices than those shown in the accompanying list. We guarantee the Judson Governor will do all any other Governor can do, and in accuracy and durability—the main essentials—we guarantee it shall do more.

Reduced Price List,

OCIOBER 15, 1878. For dimensions of Governor, see Illustrated Price List



Improved Steam Governor. 2 No Charge for Boxing or Cartage.

JUNIUS JUDSON & SON, Rochester, N. Y.

THE SHIVE STEAM ENGINE GOVERNOR. Re uced Price List, Nov. 1, 1879.



M. C. & W. D. SMYLIE,

Office, 132 N. Third St., Philadelphia, Pa., U. S. A. Works, Rethlehem, Pa., II. S. A.



Issues Policies of Insurance after a careful inspection of the Boilers

Boilers, Buildings and Machinery,

STEAM BOILER EXPLOSIONS.

The Business of the Company includes all kinds of STEAM BOILERS. Full information concerning the plan of the Company's operations can be obtained at the COMPANY'S OFFICE, HARTFORD, CONN., or at any Agency.

J. M. ALLEN, Pres W. B. FRANKLIN, Vice-Pres. J. B. PIERCE, Sec.

CHARLES M. BEACR, of Beach & Co.
DANIEL PHILLIPS, of Adams Express Co.
DEO. M. BARTHOLOMEW, Pres't Amer. Nat'l Bank.
RICHARD W. H. JARVIS, Pres't Coit's Fire Arms
MICHARD W. H. JARVIS, Pres't Coit's Fire Arms
THOMAS O. ENDERS, Soc'y & Stan Life Ins. Co.
LEVERSTT BRAINARD, of Case, Lockwood & BrainRICHARD W. H. JARVIS, Pres't Coit's Fire Arms
MILLIAM S. SLATER, Cotton Manufacturer, Provi
dence, R. I.
NELSON HOLLISTER, of State Bank, Hartford.
D. R. SMITH, Pres't Springfield Fire & Marine Ins. Co,
ard.

FRANKLIN, Vice Pres't Colt's Pat. Pire



for

Ma

ND

Pipe

EKS.

78,

A. H. MERRIMAN.

Patent Power

PUNCHING PRESSES.

WEST MERIDEN,

CONNECTICUT.





Punching, by foot, 3-4 hole in 5-16 iron 6 inches from edge.

Smaller sizes punch, by foot, 3-8 x 1-4, and 1 inch by 1-8, as rapidly as oy power presses, at one-half the cost.

Our largest hand machines punch 1 inch hole in 3-8 iron, and shear bar 3-4 x 2 inches at a cut, any length, one man at the lever.

Highest prize, The Grand Medal of Progress, has just been awarded us at the American Institute Exhibition.

Our presses can also be run by steam

Our presses can also be run by steam

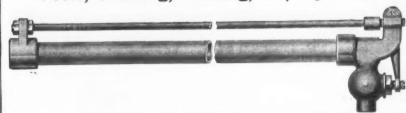
PEERLESS PUNCH and SHEAR CO., 32 Dey Street, New York City.



BOILERS & ENGINES, ALL SIZES. -Horse engine and boller, \$190; 2-Horse, \$177; 2-Horse, \$200; 4-Horse \$200; 4-Horse, \$275; 5-Horse, \$400; 5-Horse, \$425. Warranted the best. Send for Circular.

Machinery, &c.

Iron and Steel Working Machinery, Machinists' Tools, Shafting, Gearing, &c., Injectors.



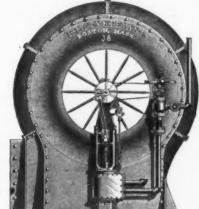
MULTIPLIED MOTION STEAM TRAP. Price, \$12.

Suits any Location.

Send for circular giving particulars.

Branch Office, 79 Liberty Street, N. Y.

STURTEVANT **BLOWERS & EXHAUST FANS**



Sturtevant's Patent Steam Fan,

For Blowing Furnaces of all kings, such as are pro vided with grate bars; especially adapted for Steam Boilers, Puddling and Heating Furnaces. Coal Screenings and all kinds of refuse coal may be successfully used for fuel by the use of these Fans to create blast. For forcing fresh air into, or taking foul air out from Coal Mines and other places needing ventilation, such as Hospitals, Asylums, Theaters and other Public Buildings, Manu facturing Establishments, &c. Also for numerou other uses where large volume of air is required.

Sturtevant Patent Exhaust Fan.

For removing Shavings and Dust from Wood Working Machines, Dust from Sand and Emery Wheels, and for Ventilation.

Sturtevant Steel Pressure Blower,

For Cupola Furnaces and Forges. The Blower, Sturtevant Patent Steam Fan. which excels all others, produces maximum results with minimum power. Used in the largest establishments in the country, where the stronges

Sturtevant Patent Improved Fan Blower,

For Steam Boilers, Puddling and Heating Furnaces.

Send for Illustrated Catalogue to B. F. STURTEVANT, Patentee and Sole Manufacturer, 72 Sudbury Street, Boston, Mass.

DIES. PRESSES, DROP And Other Tools

SHEET METAL GOODS.

Drop Forgings, &c.

THE STILES & PARKER PRESS CO., Middletown, Conn.

NEW OTTO SILENT GAS ENGINE



Working Without Boiler, Steam, Coal, Ashes or Attendance. Started Instantly by a Match, it gives Full Power Immediately.

When Stopped, all Expense Ceases.

No explosions, no fires nor cinders, no gauges, no pumps, no engineer or other attendant while running. Recommended by insurance companies.

UNSURPASSED IN EVERY RESPECT for hoisting in warehouses, printing, ventilating small shops, &c.
2, 4 and 7 H. P. and upwards. Built by SCHLEICHER, SCHUMM & CO.,

3045 Chestnut Street, Philadelphia.

BEECHER & PECK,



11 Regular Sizes. Hammers from 50 lb. to 250 lb. WE HAVE A LARGE STOCK OF SPECIAL DROP PATTERNS.

Special attention given to the making of all Drop Dies. Special machinery fitted up to order.

Send for Price List,

New Haven, Conn.

Machinery, &c

Corliss Engine Builders

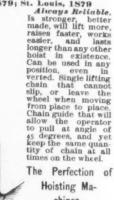


Engineers, Machinists, Iron Founders and Boiler Makers.

ROBT. WETHERILL & CO. Chester, Pa. Box's Patent Portable Double

Screw Hoist. With New Patent Self-Adjusting Chain Guide.

FIRST PREMIUM WHEREVER EXHIBITED.
Philadelphia, 1879; St. Louis, 1879
Always Reliable.
Is stronger, better made, will lift more, raises faster, works easier, and lasts longer than any other



Hoisting Machines.

Manufactured in sizes from 500 lbs. to Send for circular.

ALFRED BOX & CO., Northern Liberty Works, 312 & 314 Green Street, Philadelphia, Pa Also, Box's Patent Radial Drills, full line of Machinists' Tools, Drills, Engines, Shafting, Hang-ers, Pulleys, Hoists, Elevators, &c.

Edwin Harrington & Son MANUFACTURERS OF PATENT EXTENSION, SCREW CUTTING GAP and TERRET LATHES, Iron Planers, BORING MILLS, Radial, Upright, Suspension Multiple, Lever, Carriage Makers' Blacksmiths' Hand and Power

DRILLS,

and a variety of other MACHINISTS TOOLS. Patent Double Chain Screw

Pulley Blocks, unrivalled for Durability, Safety and Power. Patent Double Chain Quick-Lift Hoists, ith Brake for quick and easy lowering. Circulars furnis

WORKS AND OFFICE, Ave., Philadelphia, Pa., U.S.A



E. E. CARVIN & CO.,



139-143 CENTRE STREET, Cornell's Building, NEW Send for Illustrated Catalogue. NEW YORK.

BOYNTON & PLUMMER,



Bolt Cutters, Upright and Horizontal Drills, For Blacksmiths' and Carriage Makers' Use. Illustrated catalogue furnished on application

Vol.

Th

On the

explosion Messrs. V has given

render the

one of ge

decker,"
placed projoined by

in its gene also show longitudin

71 (origina

TUBAL SMELTING WORKS. STANLEY G. FLAGG & CO.

PAUL S. REEVES,

MANUFACTURER OF ANTI-FRICTION METALS.

CAR & MACHINERY BRASSES, INGOT BRASS AND SOLDER, WHITE BRASS.

Old Metals and Brass Turnings Wanted. ESTABLISHED 1842.

WM. & HARVEY ROWLAND. PHILADELPHIA,

P. O. Address:

WANUFACTURERS OF ALL KINDS OF

Elliptic, Platform & C Springs,

"Brewster Side Bar Combination Patented" Springs.

SWEDISH STOCK, OIL-TEMPERED and WARRANTED.

Swedish Tire, Toe, Blister and Spring Steel.

CAST SPRING AND PLOW STEEL. CAST SHOVEL, HOE AND MACHINERY STEEL

OXFORD TOE, SLEIGH, TIRE AND SPRING STEEL. BESSEMER SHOVEL AND PLOW STEEL.

BESSEMER MACHINERY AND CULTIVATOR STEEL

RE-ROLLED NORWAY SHAPES. NORWAY NAIL RODS ROLLED AND SLIT FROM SUPERIOR BRANDS. FRANCIS B. GRIFFIN.

C. E. JENNINGS & CO.,

98 Chambers St., New York. Agants for L'HOMMEDIEU and WATROUS & CO., Ship Augers and Bridge Builders' Augers; E. I. Scotch Pattern and Railroad Augers: NOBLES MFG. CO., Carpenters' Augers, Bits and Drawin WRIGGLESWORTH SHEAR CO., GEO. S. WILDER, Morrill's Chiesis and Drawing Kulves. CON'S HARDWARE CO., Solid head Hits; NEWCOMB BROS., Hand, Moulders' and Electronial LIPS MW. for H. H. MAYHEW & CO., Shepardson's Bits; BENJAMIN; FIECC. Auger Drawing Kulves.



Regists Action of Gases, Keeps Silver Plate and Other Metals Always Bright, Except Iron and Steel.

SOLE MANUFACTURERS,

H. V. BUTLER, Jr., & CO., 34 Reade St., N. Y. COWLES HARDWARE CO.,

UNIONVILLE, CONN., U. S. A.,



Geer's Single and Double Acting Spring Butts, on A NEW PHINCIPLE.

r actual test, so per cent. more power at clote, and the pressure is withdrawn so per cent eclosing point a measure in the grows gradual



J.M. CARPENTER

Manufacturer of TAPS AND DIES of every description. Also, for sale low, UNITED STATES STANDARD GAUGES, from 3/2 to 3 inch. IMPROVED STEEL CAS

Under Hainsworth's Patents.

We make Castings practically free from blow-holes, of steel which is as soft and as easily Worked and Welded as Wrought Iron, yet is STIFF, STRONG and DURABLE, with a TENSILE STRENGTH of not less than 55,000 lbs. to the square inch. In short, our Cast IN 36 UNITE THE QUALITIES OF STEEL AND WROUGHT IRON.

Wheels and Pinions, Dies and Hammer Heads, Engine and Machinery Castings of all descriptions Railroad Frogs and Crossings, Plowshares, Moldboards and Landsides WE USE NO CAST IRON.

Send for circular. PITTSBURCH STEEL CASTING CO., PITTSBURGH, PA.

Merrill Brothers, C. MERRILL & SONS,

HAMMERS, FORGINGS and POWER PRESSES.

The Reading Reading, U. S. A. Bolt & Nut Works.

MACHINE BOLTS. HOT PRESSED NUTS.

Railroad Track Bolts, Boiler and Bridge Rivets, Bolt Ends, Washers, Wood Screws, Turnbuckles, Refined Bar Iron, Etc., Etc., Etc.,

PHILADELPHIA, PA.

Office and Warehouse, No. 916 & 918 N. THIRD ST. Manufacturers or

STEEL CASTINGS.

Substitute for Steel and Wrought Forgings.

Steel Castings,

EUREKA CAST STEEL CO. Office: 307 Walnut St., Phila.

Racket Lantern

that beats the world, you can find it, together with

TUBULAR, DIAMOND, No. 74, No. 76,

POLICE, FARM LANTERNS,

Tubular Street, Square and Side Lamps,

Square Station Lamps,

CORPORATION

NEW YORK STREET LAMPS,

54 & 56 Fulton St., New York. R. E. DIETZ.

Machines Reduced Prices, Wheels



From 1500 to 50,000 Candle Power, for from \$100 to \$500,

EXCLUSIVE OF MOTIVE POWER. Samples at 25 Beekman Street, New York.

J. E. BRAUNSDORF & CO.,

Pearl River, Rockland Co., N. Y.



WM. ESTERBROOK,

Coal Hods 311 Cherry St., PHILADELPHIA.



One can outdo the best horse roo miles in 7 hours, 1404 miles it 6 days. Send 3-cent stamp for price list and 24 page catalogue with full information. THE POPE MFG. CO.



The Patent Combine Dinner-Pail and Lantern. The most perfect Dinner Pall the world. Hot coffee for nner and a Lantern at night.

Manufactured by JOS. HAIGHT, POBT CHESTER, N. Y



AIR COMPRESSORS CLAYTON STEAM PUMP WORKS

Scranton Brass Works, J. M. EVERHART, BRASS WORK,



Cliff Street, SCRANTON, PA.
MORGAN & CO., Agents, 99 John St., New York City.

RUSSELL, BURDSALL & WARD

Port Chester, N. Y.,

CARRIAGE, TIRE, PLOW, STOVE AND OTHER

Light and heavy Steel Castings of superior CARRIAGE BOLTS MADE FROM BEST SQUARE IRON A SPECIALTY.

Green River Works, MANUFACTURERS OF

Table and Pocket Gutlery,

BUTCHERS', HUNTERS', PAINTERS', DRUGGISTS' & HOUSEHOLD KNIVES IN ALL STYLES AND VARIETIES.

New York Office,

90 Chambers Street.

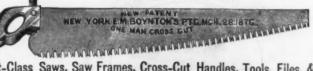


Factories.

Turners Falls, Mass. FROM 1-4 TO 10,000 LBS. WEIGHT,

True to pattern, sound and solid, of unequaled strength, toughness and durability. An invaluable substitute for forgings or cast iron requiring three-fold strength. Gearing of all kinds, Shoes, Dies, Hammerheads, Crossheads for Locomotives, etc. 13.000 crank Shafts of this steel now running proved superior to wrought iron. CRANK SHAFTS, CROSSHEADS AND GEARING ARE SPECIALTIES. Circulars and Frice Lists free. Address CHESTER STEEL CASTINGS CO., (Formerly MeHame Direct Steel Castings Co.)

CHESTER OF LEAST Steel Castings Co.),
(Formerly McHame Direct Steel Castings Co.),
Works, Chester, Pa. 407 Library st., Philadelphia. E. M. BOYNTON. Manufacturer of all kinds of



First-Class Saws, Saw Frames, Cross-Cut Handles, Tools, Files, &c. CENUINE PATENT LIGHTNING SAW.

SO BEEKMAN STREET, NEW YORK. AND THE RESIDENCE OF THE PROPERTY OF THE PROPE

Single Acting.	Japanned.	Double Acting
Per Pair.	Size.	Per Pair.
\$0.80	3 inch.	\$1.60
1.00	4 inch.	2.00
1.25	5 inch.	2.50
1.75	6 inch.	3.50
2.25	7 inch.	4.50
3.25	8 inch.	6.50
4.50	10 inch.	9.00
6.00	12 inch.	12.00

ALSO,

American Spiral Spring Butts, Gem Coil Door Springs. Star Coil Door Springs,

Torrey Rod Door Springs, Bee Rod Door Springs,

Gray's Rod Door Springs, Domestic Blind Adjusters.

13 Send for Complete Catalogue.

VAN

Manufacturers.

82 Beekman Street, New York.

BALTIMORE RIVET AND SPIKE WORKS.

Rivets, Spikes, Bolts, Nuts,

Bolt Ends, Wood Screws, Track Bolts.

WM. GILMOR of WM., cor. President & Fawn Sts.

ensile strength he second cylin 12 inches diamet he lower one by ameter. The ot taken, but it iches) and the n ascertained. m drum was eet long, upon safety-valve d stop-valve. front of the n below the b

d, were provid nation, cleaning ons as were not The water was e the horizon nder, as indi gauge-cocks. ges of water inds of water, in the plain

e boiler was wo limited to 80 r the furnace was at the front en ough the tubes,